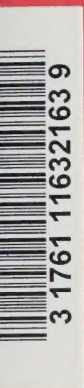


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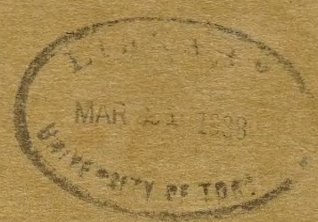
DOMINION HOUSING ACT

MEMORANDUM SPECIFICATIONS

COVERING

MINIMUM STANDARDS OF MATERIALS AND CONSTRUCTION

TO BE USED IN



_____	DESCRIBE TYPE OF HOUSE
_____	OWNER
_____	LOCATION

_____	ARCHITECT
_____	BUILDER
_____	LENDING INSTITUTION
_____	DATE

MEMORANDUM SPECIFICATIONS

Covering Minimum Standards of Materials and Construction to be used in houses upon which loans are to be made under The Dominion Housing Act.

These specifications are to be filled out and furnished in duplicate to the Lending Institution with Borrower's Application Form D. H. 1. It is recommended that these specifications be completed through the agency of the architect or builder of the proposed house.

The Minimum Standards of Materials and Construction acceptable are described in detail in the notes placed below the questions to be answered. It is required that all construction and materials entering the proposed house be equal to or better than the Minimum Standards. It is also required that all work be done in a workmanlike manner by mechanics skilled in their respective trades.

Materials and construction will be required to conform with local Building By-laws and Provincial Regulations.

Complete plans including plot plan, floor plans, elevations and section, drawn to scale shall be furnished in duplicate with these specifications.

In the case of a house of fireproof construction, it is required that the details of such construction accompany the plans and these specifications.

IMPORTANT

Particular attention is directed to the following requirements as called for in the Minimum Standards of Construction and the Memorandum Specifications.

Plans and specifications for houses to be financed under the Dominion Housing Act must conform to the following requirements in order to assure approval of the loans with the least possible delay.

(a) Plot Plan

A plot plan showing the location of the house upon the lot, with dimensions indicating compliance with the yard requirements.

(b) Chimney Flues

Chimney flues must be of proper size, lined with flue lining and surrounded with at least a 4" masonry wall, or if no flue lining is used the flue must be surrounded with at least an 8" masonry wall.

(c) Framing Lumber

All framing lumber including studs, joists, rafters, etc., must be of the sizes and at the spacing required by the Memorandum Specifications.

(d) Attached Garage

When garage is attached to or under any part of the house the wall and ceiling between the house and garage must be fireproof and any door opening between the house and garage must be tin-clad as called for in the Minimum Standards of Construction and Memorandum Specifications.

(e) Room Sizes

(See Minimum Standards of Construction).

(f) Window Exposure

Windows must have a glass area of at least 10 per cent of the floor area of the room (see Minimum Standards of Construction).

(g) Chimney caps

All chimneys to have stone, concrete or metal caps.

SPECIFICATIONS MUST BE SIGNED

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DOMINION HOUSING ACT, 1935

MINIMUM STANDARDS OF CONSTRUCTION

Under Section 4, subsection (2) (a), Dominion Housing Act, 1935, the following Minimum Standards of Construction have been approved by the Minister of Finance for houses eligible to be financed under the Dominion Housing Act, 1935.

General Conditions:

1. All parts of buildings shall be designed and constructed to support safely their own weight and that portion of the live loads which they may carry. All buildings shall be adequately braced to resist lateral forces.
2. Exterior walls shall be set upon concrete or masonry foundations, either piers or continuous walls, extending to firm bearing surfaces below the frost line for the locality. Footings shall be of proper area to assure uniform distribution of loading and to prevent excessive or unequal settlement of the building.
3. Floor construction resting directly on the ground shall be of concrete constructed to prevent the entrance of moisture. Adequate drainage shall be provided for all basement floors.
4. When no basement is provided, and wood or metal joists, beams or girders are used, the space between the ground and the floor system shall be adequately ventilated and sufficient space shall be provided for access for inspection and repairs.
5. Exterior walls and roofs, together with all openings exposed to the weather, shall be constructed to prevent moisture from penetrating the building. Flashing and caulking shall be provided where necessary.
6. All exterior surfaces, which are subject to corrosion or damage from the weather, shall be adequately protected by painting or other treatment which will assure reasonable durability.

Definitions:

- (A) A "single family house" means a complete self-contained dwelling not attached to or forming part of any other house.
- (B) A "two family house" means two complete self-contained dwellings attached to each other, side by side, or one above the other.
- (C) An "apartment house" means more than two self-contained dwellings or houses under the same roof.
- (D) A "habitable room" means a room used for living, sleeping, eating, or food preparation.
- (E) A "non-habitable room" means a room not used for living, sleeping, eating, or food preparation.
- (F) "Ordinary construction" means walls, floors, roof, partitions, etc., of masonry, veneer, frame, or any other type of non-fireproof construction.

- (G) "Fire-resisting construction" means floors, walls, roof, etc., constructed with recognized slow burning or fire-resisting materials. In apartment houses the partitions enclosing public stair halls and corridors shall be of brick or tile at least 6" thick.
- (H) "Fireproof construction" means walls, floors, roof, partitions, etc., constructed of non-combustible materials. It is not intended to prohibit wood window frames and sash or other ordinary construction within each apartment, provided each apartment is enclosed by fireproof division walls and all openings in the division walls are protected with fireproof doors.

Lot Coverage:

A single family house or a two family house must not cover more than 33% of the area of an inside lot and not more than 40% of the area of a corner lot. An apartment house must not cover more than 60% of the area of an inside lot and not more than 75% of the area of a corner lot.

Yards:

All habitable rooms must have at least one exposure with a window or windows having a total area of at least 10% of the floor area of the room opening on a street frontage or a side or rear yard of which the width is not less than one-fifth of the overall length of the wall in which the openings occur and in no case less than 6' 0".

In the case of non-habitable rooms in which there are openings through a side wall the minimum width of the side yard adjoining shall be 3' 0". In the case of party walls or of walls in which no openings occur the wall may be built to the lot line.

Where a public lane or right-of-way exists between two adjoining properties the centre line of such lane or right-of-way may be considered as the property line in determining the exposure and side yard.

Courts:

Courts that light and ventilate habitable rooms shall not be enclosed on more than three sides and shall open into the yard or public space. The width of such courts shall be not less than 12' 0" and the width shall be increased by two feet for each additional storey above the second. No court shall be deeper than four times its width. Courts that light and ventilate non-habitable rooms may be of a minimum width of six feet and the width shall be increased by one foot for each additional storey above the second and may be enclosed on all four sides provided access for air is provided at the ground level by an unrestricted opening having at least one-tenth of the area of the court.

Shafts for Inside Bathrooms:

Only where the local building code particularly allows will a bathroom or toilet be permitted to be lighted or ventilated from a shaft, and the shaft must extend from the basement floor level to a point 2' 0" above the roof. The shaft may extend only to the first floor level, provided it rests on a reinforced concrete slab supported on steel or masonry. The walls of this shaft must be of masonry at least 8" thick, and all openings into this shaft must be of metal frame and sash and glazed with wire glass.

The shaft must be at least 3' 0" x 3' 0", and must be increased by 3 sq.ft. in area for each floor above the second:

Access to this shaft shall be provided at the lowest level in order that it can be kept clean.

The floor of this shaft must be of cement, properly sloped to a floor drain of ample size.

Room Sizes:

Living Room..... Minimum area 150 sq.ft.
Minimum width 11' 0".

Dining Room..... Not necessary, but if no separate dining room is provided living room or kitchen, whichever it is proposed to use as a dining room, must be increased by an area of at least 30 sq.ft.

Kitchen (If a separate room) Minimum area 50 sq.ft.

Kitchenette & Dinette

Combined Minimum area 80 sq.ft.

Bedroom (At least 1 bedroom) Minimum area 120 sq.ft.

Other Bedrooms..... Minimum area 80 sq.ft.
Minimum width 7' 6".

Clothes Closet..... All bedrooms must have a clothes closet with a minimum area of 4 sq.ft.

Ceiling Heights..... First and second floor 8' 0" clear height. Where sloping ceilings occur at least 50% of the floor area must have 8' 0" height and the balance of the minimum floor area must have a height of at least 5' 0". Basement ceiling height in general to be 6' 6" clear of all beams, pipes, etc.

Window Exposure:

Every room must have an outside exposure with a window or windows containing a glass area of at least 10 per cent of the floor area of the room. 50 per cent of the required glass area must be hinged or sliding to permit opening to the outside, except as follows:—

- (A) Bathrooms and toilets, outside window openings may be omitted if a system of ventilation is used that will automatically change the air without requiring to be controlled by the occupant.
- (B) Kitchen, when joined and a part of a dining room no direct window is necessary, provided there is no separation between the dining room and kitchen, except a beam in the ceiling and cabinets not over 4' 0" high, provided that the area of the dining room window is large enough to meet the requirements of a room containing the combined floor area of both dining room and kitchen.
- (C) A breakfast alcove or pantry containing not more than 30 sq.ft. of floor area if properly ventilated is not required to have outside window exposure.

Construction:

A single family house, a two family house, or an apartment house, three storeys or under, may be of ordinary construction except that in the case of an apartment house the public stair halls, corridors, and boiler room shall be of fire-resisting construction.

All apartment houses four storeys and over shall be of fireproof construction.

Stairs:

A single family house, a two family house, or an apartment house having not more than twenty-five habitable rooms above the first floor will be required to have one stairway extending from the ground floor to the top floor.

All apartment houses having more than twenty-five habitable rooms above the first floor shall have two separate stairways extending from the ground floor to the top floor.

All stairs shall have treads not less than 9" and the rise shall be not more than 8".

Garage:

When the garage is attached to the house or forms part of the house it shall be separated from the house by a masonry wall at least 8" thick. Any openings from garage to house shall be protected by a metal clad fire door.

Garage in basement or under any portion of the house shall have a ceiling composed of a reinforced concrete slab at least 4" thick, or if a wood ceiling it must have two separate applications of metal lath and plaster or other fire-resisting materials, with an air space between. Garage must be ventilated direct to the outside.

* * * * *

Subject to the minimum standards hereinbefore set out, materials, equipment, and methods of construction in general use in any locality are acceptable for houses eligible to be financed under the Dominion Housing Act, 1935, in that locality, provided their durability and suitability for their intended purpose have been demonstrated by experience. Acceptance of materials, equipment, and methods of construction not in general use may be authorized by the Minister of Finance on the basis of such investigation and tests as may be necessary to determine their durability and suitability.

These standards are not intended to interfere with existing building codes and Provincial Regulations, except where the building codes or Provincial Regulations require standards inferior to those called for herein.

The Minister of Finance has also caused to be issued Memorandum Specifications covering materials and methods of construction required or recommended.

SPECIFICATIONS

EXCAVATION WORK:

1. Kind of Soil..... (Rock, Clay, Sand, Filled Ground)

All ground upon which foundations rest must be able to support the superimposed load without subsidence.

Placing of footings and other foundations upon filled ground is not desirable. Filled ground shall be thoroughly tested and approved by a competent authority before being built upon.

2. Depth of Excavation.....

All foundations unless on rock must be sufficiently below finished grade line to avoid damage by frost. The minimum depth of foundations is generally given in local building by-laws.

3. Farm Tile Drain. Is it to be used around foundations, etc.? Give particulars.....

In all excavations where accumulation of water is likely to occur, foundations and basements shall be kept dry by placing a continuous row of unglazed farm tile drain in a bed of stone or cinders around the outside of the wall at the level of the footings and below the basement floor level, and if necessary, a row or rows under the basement floor. All shall be connected through a running trap to the main drain or to other waste water system.

4. Waterproof Foundation Walls, etc. Give brief description.....

All foundation walls below grade shall be made watertight either by using a waterproof concrete in the foundation walls, the concrete being specially mixed to obtain this quality, or by applying a coating of coal-tar pitch, or an asphalted or other waterproof membrane to the outside of the walls below grade, or by parging the walls inside or outside with waterproof cement mortar, or by other suitable means. Basement floors shall also be made waterproof by any approved method, dependent upon the nature of the soil. Concrete block foundations walls are to be parged with cement mortar before applying the waterproofing.

5. Grading and Planting: State briefly the extent of the work contemplated.....

It is required that all lots be levelled or terraced or otherwise satisfactorily treated after building operations are completed. It is desirable that planting and sodding or seeding be executed around the house in keeping with its character.

6. Walks and Driveway. Describe briefly their extent, nature, and material to be used in the fill and in the top surface.....

Suitable and properly constructed walkways from the street to the principal entrances of the house, and a driveway to the garage, if any, are required for all houses. The method of construction and the materials used in finished surfaces are left to the option of the owner. As a minimum, a thin bed of gravel, stone, broken brick, or cinders, with a fine gravel surface is satisfactory for a walkway, a 6" bed of stone gravel, brick or cinders with a fine gravel surface well rolled, for the driveway. If 1½" or better stone slabs are used for the walkway no specially prepared bed is required.

7. **Footings—Materials.....General dimensions.....**

Footings either of concrete or of masonry shall be of sufficient width and thickness to spread the load safely upon the soil, having due regard to its nature.

8. **Foundation Walls—Material..... Thickness.....**
Mix.....

Exterior foundation walls shall be of solid concrete or masonry, and of the thickness required by local building by-laws. In no case shall exterior concrete foundation walls for houses be less than 10" in thickness, but the foundation walls of a one-storey garage attached to a house may be 8" minimum thickness if permitted by local by-laws. No stone masonry foundation walls shall be less than 16" thick. All exposed walls above grade shall be cleaned down and dressed, faced or pointed as desired.

Where permitted by local building codes cement blocks of a minimum thickness of 12" may be used, providing the walls are parged on the outside with cement mortar and waterproofed if required.

Minimum requirements for concrete for foundation walls, etc.

Concrete shall be laid in sound forms, erected true to line and well braced against deflection under load. The ingredients of the concrete shall be measured and shall consist of not more than 3 parts sand and 5 parts crushed stone up to 2" size to 1 part of cement by volume. Good clean gravel and sand up to 6 parts by volume to 1 part of cement may be used. In foundation walls and other thick masses of concrete the use of stone "plumbs" or fillers of sound quality in reasonable quantities will be permitted, provided the stones are dropped into a bed of concrete so as to embed them properly. The use of very wet concrete is to be avoided since the strength of concrete diminishes rapidly if more water is used than that necessary to make a plastic mass. It is strongly recommended that wherever facilities exist to provide proper supervision of the mixing and testing of concrete, "2,000 lb. concrete" be used in foundation walls.

9. **Basement Floors: Describe briefly the fill to be used.....**
The concrete.....
The finish.....

In general, basement floors shall be finished in cement, trowelled smooth, laid integrally by preference, on a 3" to 4" bed of cinder or stone concrete of the mix described above for foundation walls. The cement finish shall not contain more than $2\frac{1}{2}$ parts of sand to 1 of cement, and shall be $\frac{3}{4}$ " thick, or better. Before pouring the concrete bed, the ground to receive it shall be levelled and filled with five or six inches of broken stone, cinders, or brick, etc., in which tile drains, if any, are to be laid. Cinder fill under basement floor shall not come in contact with cast iron drainpipe.

Where hardwood floors are required they shall be laid on a 4" concrete slab satisfactorily waterproofed. The wood flooring may be laid either direct on the concrete in a mastic composition, or upon wood sleepers.

10. **Basement Floor Drain—State type and where connected.....**

All basement floors below grade level shall be properly drained through a 4" glazed earthenware or cast iron drain pipe to sewer, or other means of waste water disposal. The drain shall be provided with a suitable trapped floor outlet and grating or strainer flush with the floor, and removable for cleaning.

11. **Reinforced Concrete—Describe briefly where used and how constructed.....**

Reinforced concrete used for structural purposes such as floor slabs, columns, etc., shall be carefully laid in tight forms and reinforced to details to be provided by the architect or by a qualified structural engineer. The concrete shall be to the full thickness specified and shall be carefully placed in the forms. Unless concrete mixed under special supervision is to be used, it shall be mixed

in the following proportions—1 part of cement, 2 parts of clean sand, 4 parts of crushed stone of a size to pass through a $1\frac{1}{2}$ " ring. A mixture of 1 part of cement to 4 parts of clean gravel and sand may be substituted for the above. In localities where concrete of a specially supervised mix is obtainable it is strongly recommended that "2,500 lb. or better concrete" be used in all reinforced concrete work.

The following table of slab thicknesses and reinforcing is given as a guide for minimum requirements in ordinary floor slabs of simple span (without beams) such as may be used as a floor between a basement and ground or first floor, and over a garage. The calculations are made so as to provide for a maximum live load of 40 lbs. per square foot upon the slab.

Solid reinforced concrete slab.

Span	Slab thickness	Reinforcing steel (round rods)
Up to 8' 6".....	4 "	11" rods at 5" c/c.
8' 7" to 10' 0".....	4½"	11" rods at 4" c/c.
10' 1" to 11' 0".....	5 "	11" rods at 7" c/c.
11' 1" to 12' 0".....	5½"	11" rods at 6" c/c.
12' 1" to 13' 0".....	6 "	11" rods at 5" c/c.
13' 1" to 14' 0".....	6½"	11" rods at 4" c/c.

To prevent cracking of slabs, temperature rods $\frac{3}{8}$ " diameter and 20" to 24" centres shall be laid in the slab in a transverse direction to that of the main reinforcing.

12. **Outside Walls.**—Give brief description of construction to be used, quality of brick, stone, or concrete block, etc.....

Window Sill Material.....

Door Sill Material.....

Coping Material.....

1. Brick or Stone or Concrete Masonry Construction.—All exterior brick, stone or concrete walls shall conform in thickness to the requirements of the bylaws of the district, and no such wall shall be less than 8" in thickness in any part. In brick walls the brick shall be sound, hard burned and as non-absorbent as possible, 7% to 8% absorption by weight upon immersion in water being the maximum permitted. Bricks, wherever possible, shall be set in cement and lime mortar made by mixing, just prior to using, equal quantities of cement mortar (1 part cement to 3 parts sand) and lime mortar (1 part lime, previously slaked, to 3 parts sand). The use of hydrated lime in mortar is fully approved. Face bricks shall be new bricks of good shape and condition, bonded into the backing at least every fifth course. Backing bricks may be second-hand stock if they are hard burnt and clean. Backing the face brick with concrete blocks or terra cotta blocks will also be satisfactory, provided proper bonding is made between the two.

Where stone is used for the outside face of a masonry construction wall, it shall be a sound, hard, and relatively non-porous building stone. It shall be at least 6" thick on the bed if in the rough, or 4" if sawn, with sufficient header stones to make a proper bond with the backing. Backing material may either be stone, brick, concrete block or terra cotta tile of sufficient thickness to make the wall at least 12" thick overall. Concrete backing poured in forms as the building of the walls proceeds is approved, provided the total thickness of the wall is not less than 12" and the concrete backing shall be made damp proof before the wall is furred.

Concrete walls, if solid, shall be built as described for foundation walls, properly reinforced over openings, and of the same general thickness as a brick wall would be in the same location.

Concrete tile walls shall be of the same thickness as a brick wall, constructed out of machine pressed, solid or hollow concrete blocks manufactured in strict accordance with local bylaws, but in all cases having at the age of twenty-eight days a minimum compressive strength of 1000 lbs

12. Outside Walls—*Concluded*

per square inch of effective net section. Hollow blocks shall have webs 1" or more in thickness and the hollow spaces shall not exceed $\frac{1}{3}$ of the area of the end section. Blocks shall be built in the wall with webs vertical wherever possible, and solid blocks shall be used in a bearing wall under floor joist loads. Concrete blocks may be used in a finished wall face provided the outer face is made of special waterproofed cement finish, otherwise concrete block walls shall be given a stucco finish, either direct on the blocks or upon metal lath and wood furrings attached to the wall.

The requirement in the above paragraph as to the manufacturing process and strength of concrete blocks shall apply also to all concrete tile blocks used for "backing" purposes.

2. Stone veneer 6" thick or better, or brick veneer 4" thick or better, upon a wooden frame construction is permitted, provided the frame is substantially built either of 2" x 4" studding at not more than 16" centres, properly braced, and strengthened with separators and diagonal braces, sheathed with $\frac{3}{8}$ " T. & G. (or shiplap) sheathing or better, and covered on the outside with 7 oz. tarred or asphalted felt (or better), lapped 4" at the joints. A plank frame may take the place of the studding and boarding, but it shall be built of 3" plank or of 2" plank covered with T. & G. sheathing with building paper or felt between the two. In the case of a plank framing, all structural members shall be framed together with dovetailed joints to provide proper rigidity in the structure. All material used in plank framing and in studding, whether of pine, spruce, hemlock or Douglas fir, etc., shall be entirely free from soft rot, very large or loose knots, or shakes, etc., which would impair its nail holding qualities.

It is required that no grade of material below No. 4 Common White Pine, No. 4 Spruce (Quebec 5ths) and No. 3 Common Douglas Fir, Western Hemlock and Western Spruce be used in the wall framing, and sheathing.

All veneer material (brick or stone) shall be well secured to the wall with galvanized iron holdfasts or 5" nails, every 16" in height and width, and all veneering material shall be set in cement and lime mortar.

All woodwork used in this type of construction shall be new material. The use of material removed from other building structures is definitely prohibited, but form lumber used for foundation work on the house may be embodied in the superstructure if it is sound structurally and of suitable quality.

3. An "All Wood" frame construction may be used for outside walls where permitted by bylaws. The framing material and sheathing shall be as described above for veneered wall construction. The outside covering, if clapboard, or bevelled siding, shall be manufactured from No. 1 and 2 Common, or better, White Pine or equivalent grades in other suitable material. In Western woods where definite grades of dressed material are established, No. 2 Clear and better sidings are recommended in Western Red Cedar, Douglas Fir, Western Hemlock, and Western Spruce, or Clear A bevel sidings in Western Red Cedar. Where shingles are used, the grade known as Clear Walls in Eastern cedar and No. 3 Grade XXXXX in Western Red Cedar or better grades shall be used. Such coverings or facings shall be laid according to standard building practice. Cement stucco on galvanized iron metal lath set on wood furring as described in Section 19, may be applied as an outside covering to a building with wood frame construction.

(a) An approved manufactured product may be used as a substitute for sheathing, etc.

(b) Approved insulated siding laid to the Manufacturer's Specification, over sheathing and building paper, as specified above may be used for exterior wall surfacing.

(c) Fire stops. It is recommended that fire stops be provided in partitions and stud walls at first floor and at attic, which shall cut off completely all openings between basement and the upper stories.

All lumber used in wall construction shall be new material as described above, not previously used in another building.

13. Fireproof Partitions and Floors.—State where they will occur, give thickness and materials to be used.....

Local bylaws shall be strictly observed in regard to the requirements of building fireproof partitions and floors in certain locations.

In general, and if not otherwise required by building bylaws, fireproof partitions and floor construction are required:

(a) Between any portion of a garage and the adjoining house. Partitions shall be at least 8" in thickness, built of brick, concrete or terra cotta tile, and set in cement and lime mortar. The floor between a garage and other occupied parts of a house shall be of fireproof construction, properly designed and reinforced to carry a superimposed live load of not less than 40 lbs. per sq. ft. In no case shall the fireproof floor slab be less than 4 inches in thickness. In localities where it is allowed by bylaw, the floor between a garage and other occupied parts of a house may be of joist construction protected on the garage side with two independent applications of expanded metal lath and plaster $\frac{5}{8}$ " thickness, or of other fire-resisting materials.

(b) Between two semi-detached houses. The common wall between two semi-detached houses shall be built in conformity with local bylaws, which in some instances may require partitions thicker than those described herein. In no case shall the common wall be less in thickness than 8" in the two upper storeys and 12" in either or both of the two storeys below. Materials described above for garage partitions will be approved. All beds and joints in the common wall shall be filled completely with cement and lime mortar. The ends of joists or other bearing members resting on the wall shall be splayed and shall not come within 4" of each other where resting on opposite sides of the wall. On 8" walls the joists shall therefore be staggered.

(c) In all non-fireproof apartment houses 3 storeys or under, the partitions around public halls and corridors and around stairways shall be built of fire-resisting materials.

(d) Furnace room partitions in fireproof materials are recommended.

14. Chimneys—Flues, etc. State materials to be used, sizes of flues, and overall sizes of chimneys

It is strongly recommended that flues from furnaces, stoves and fireplaces be lined with glazed clay tile pipe. All shall be built with brick or solid masonry walls 8" in thickness if not tile lined, and 4" if tile lined, and no smoke flue shall be less than 7 $\frac{1}{2}$ " diameter on the inside. The brick used shall be hard burned, and all chimney walls shall be built in cement and lime mortar. If not lined, the inside faces of brick shall have struck joints pointed flush. Each smoke flue shall have a cast iron clean-out door, set wherever possible, at least 3' 0" below the smoke inlet. No wood joists or beams shall rest on the brickwork forming a chimney flue. A stone, concrete or metal cap shall be applied to the top of each chimney to prevent disintegration of the brickwork. All chimneys shall be carried up to a height of 2' 0" above the highest point of the roof unless they are at least 12' 0" away from the ridge.

15. Fireplaces: State material to be used, finish and location

All fireplaces shall have trimmer arches of concrete or brick, etc., 6" minimum thickness, to carry the hearths, and no wood forms or other wooden members shall remain in place below the hearth. Preferably, the hearth shall be cantilevered or corbelled out from the chimney breast and carried entirely by the chimney. Hearth construction of fire places, provided with a flue for burning coal or wood, shall be 16" wide, measuring from the chimney breast, and shall be a minimum of 5' 0" in length, or otherwise the full length of the breast. Open fire places shall be properly lined with firebrick or tile linings and be provided with a suitable damper, set to the manufacturers' detailed instructions. The net area of the flue from any fireplace shall be at least 1/12th of the area of the finished fireplace opening. It is desirable that an ash pit be provided below an open fireplace.

16. Rough Carpentry and Furring:

(a) **Material:** State kind of lumber (pine, fir, spruce, hemlock, etc.) and grade, to be used in frame work, joists, studding, etc.

and in flooring, roofing, sheathing, etc.

16. Rough Carpentry and Furring—Continued

All material used for Rough Carpentry work shall be new material, and no second-hand lumber removed from other buildings during demolition shall be incorporated into houses described herein. Good form lumber used in the foundations, etc., may, however, be incorporated into the house, if it is in good structural condition.

All materials used in joists, rafters, beams and studding, etc., shall be structurally sound, free from hard and soft rot, large knots that would impair its strength, shakes, etc., the following being the minimum grade requirement for framing stock, No. 3 Common White Pine, No. 3 Spruce (Quebec 4ths), No. 2 Common Douglas Fir, Western Hemlock and Western Spruce. Where other lumber is used the quality and grade shall be equal to these gradings or better. It is recommended that joists 2"x 8" and up, be one grade higher than listed above.

No joists shall be used in which knots of over one-fifth of the width of the joist occur in the middle half of the span.

Unexcavated space under wood floors shall be ventilated.

For flooring and roof boarding, etc., all material shall be reasonably sound, and entirely free of soft rot. No. 4 Common White Pine, No. 4 Spruce (Quebec 5ths), No. 3 Common Douglas Fir, Western Hemlock or Western Spruce may be used for this purpose, provided such grading excludes material containing soft rot.

(b) Joists: State sizes, Material and spacing on Ground or First Floor.....

Second Floor, etc.....

Top Floor Ceiling.....

It is desirable that joists in the principal floors of houses be spaced at 1' 4" centres with 1' 6" as maximum, so as to avoid springiness in the finished flooring. In ceiling construction 1' 8" centres is desirable. Joists shall be bridged with 1" x 2" (or better) diagonal cross bridging, one row to each span over 7' 0" and up to 12' 0" in width and two rows in spans over 12' 0". Joists shall be doubled under partitions and around trimmed openings.

Ends of floor joists framing into masonry walls shall have not less than 4" bearing and shall have at least a 3" bevel or fire cut.

MAXIMUM SPAN FOR FLOOR JOISTS

Spruce, Hemlock, White or Red pine						Douglas Fir					
	12" o.c.	14" o.c.	16" o.c.	18" o.c.	20" o.c.		12" o.c.	14" o.c.	16" o.c.	18" o.c.	20" o.c.
2" x 6".....	9' 0"	8' 6"	8' 0"	7' 0"	6' 0"	2" x 6".....	10' 0"	9' 6"	9' 0"	8' 0"	7' 0"
2" x 8".....	13' 0"	12' 6"	12' 0"	11' 0"	10' 0"	2" x 8".....	14' 0"	13' 6"	12' 9"	12' 3"	11' 9"
2" x 9".....	14' 6"	13' 6"	12' 6"	12' 0"	11' 9"						
2" x 10".....	16' 0"	15' 3"	14' 3"	13' 3"	12' 9"	2" x 10".....	17' 9"	16' 9"	16' 3"	15' 6"	14' 9"

MAXIMUM SPAN FOR CEILING JOISTS

Spruce, Hemlock, White or Red Pine					Douglas Fir				
	12" o.c.		16" o.c.	20" o.c.		12" o.c.		16" o.c.	20" o.c.
2" x 4".....	10' 0"		9' 0"	8' 0"	2" x 4".....	11' 0"		10' 0"	9' 0"
2" x 5".....	13' 0"		12' 6"	11' 6"					
2" x 6".....	15' 0"		13' 6"	12' 6"	2" x 6".....	16' 9"		15' 3"	14' 3"
2" x 8".....	19' 0"		18' 0"	16' 0"	2" x 8".....	22' 0"		20' 0"	19' 0"

Sizes given above are nominal. Standard finished sizes are acceptable.

If the area (attic space) above the top floor is to be used for habitation or storage, the joists shall be assumed as floor joists.

(c) **Studding:** State sizes, and spacing (1) in bearing partitions.....

(2) in non-bearing partitions.....

Studding in bearing partitions shall be 2" x 4" or 3" x 3" at 1' 0" centres, and in other partitions shall be 2" x 3" or 2" x 4" at 1' 4" centres. Bearing partitions through which it is not proposed to run heating or ventilating ducts may be constructed of 2" x 4" studs, 16" centres, providing there is one horizontal girth to each storey. Partitions shall be bridged at least once, preferably twice, in their height, and there shall be placed on top and bottom continuous runners and they shall be doubled at all major openings and trussed at their heads in bearing walls. In bearing partitions at least two-thirds of the studdings shall be in one length from floor to ceiling. Where bearing partitions extend through more than one floor the studding shall, if possible, be continuous from floor to floor, rather than rest upon the ends of the floor joists. This precaution is to prevent cracking through shrinkage of the joists. It is strongly recommended that in houses where heating ducts rise in a bearing partition that the partition be made double, so that the ducts will not cut through the horizontal runners, or disturb the spacing of the studding. It is recommended that metal straps or ties be used to tie or brace studding around heating ducts.

(d) **Roof Framing:** State sizes, etc.....

Double rafters and trimmers shall be used around all dormers and other large roof openings, and hips and valley members shall be increased in size as required to carry the roof load. Collar ties shall be of the same size and spacing as the rafters.

MAXIMUM SPAN FOR ROOF RAFTERS

Spruce, Hemlock, etc.				Douglas Fir			
	16" o.c.	20" o.c.			16" o.c.	20" o.c.	
2" x 4".....	6' 0"	5' 6"		2" x 4".....	7' 3"	6' 9"	
2" x 5".....	8' 0"	7' 6"					
2" x 6".....	10' 0"	9' 3"		2" x 6".....	11' 0"	10' 3"	
2" x 8".....	13' 0"	12' 3"		2" x 8".....	14' 6"	13' 9"	

NOTE.—The span of the rafters is to be taken on the slope.

(e) **Wood Furrings:**at ceilings for lath.

size centre

.....at outside walls.

size centre

1" x 2" furrings at 12" or 16" centres is standard practice for lathing and at not over 16" centres for fibre plaster base on masonry and brick walls, etc.

(f) **Sound Deadening:** Describe any sound deadening material being installed—give location

It is strongly recommended that in apartment houses sound deadening material be used in the construction of the floors and walls separating the various apartments. The use of inert materials between joists and between studdings, or a fibre board plaster base on walls and ceilings will provide a reasonable degree of sound insulation.

17. Finishing Carpentry:

(a) Window and Door Frames.—State materials and dimensions of stock.....

Frames shall be of full width of openings left for windows and doors, manufactured of a material equal or better in quality and grade to No. 1 and No. 2 Common White Pine or No. 2 Clear Douglas Fir. Window and door frames shall be thoroughly caulked with oakum when set, and preferably stopped with mastic compound applied under pressure at completion of brick or stone work.

(b) Basement Window Frames and Sash: State material.....

(c) Window Sashes, etc.—State whether double hung or casement or both.....

State material in sashes, wood.....thickness.....

metal.....type.....

manufacturer's name.....

Are storm sashes to be supplied?.....

Are fly screens to be supplied?..... If so, state material to be used.....

If shutters or outside blinds are to be supplied, give particulars including thickness.....

If metal weatherstripping of windows and doors is included, give particulars.....

Wood window sashes, etc., shall be made of White Pine No. 3 cuts and better, No. 2 Clear and better Western Red Cedar or of wood of equal quality and grading $1\frac{3}{8}$ " minimum thickness. Double hung sash shall be hung in box frames with balance weights, sash cords and pulleys, or otherwise fitted with approved spring balances, to facilitate easy opening and closing.

The use of blinds or shutters is optional.

The use of metal weatherstripping on sashes and doors is recommended.

(d) Exterior Wood Trim.—State material to be used in outside trim, porches, etc., and describe extent of trim briefly.....

Material used in outside wood trim shall be No. 1 and No. 2 Common White Pine or better, No. 2 Clear or better Douglas Fir, Western Hemlock or Western Red Cedar, or equivalent grades of other suitable woods. Generally speaking, trim may be made from inch thick stock, but barge boards and other independent members shall be from $1\frac{1}{4}$ " stock or better. Verandah floors and treads to outside steps shall be $1\frac{1}{8}$ " thick minimum, but ceilings of galleries, porches, etc., may be finished with $\frac{5}{8}$ " T. & G. material with V or beaded joint.

Rough clapboards in gables of masonry and brick houses, etc., shall be $\frac{7}{8}$ " thick at the butt, and imitation half-timbered work shall be at least $1\frac{1}{8}$ " thick finished. The material to be used in this type of work is left to the option of the owner. Hand rails, balusters, posts, etc., shall be made of dimensioned stock suitable for the class of house in which it is being placed.

(e) **Front Entrance Door and Frame:** State material to be used.....

Door thickness (minimum $1\frac{3}{4}$ ").....

Type of door.....

It is recommended that the front entrance door be a full 2" in thickness and built up out of solid stock in preference to veneer, as the latter deteriorates when used out of doors.

(f) **Other Exterior Doors:** Where?.....

Material.....

Thickness.....Are storm doors to be provided?.....

Entrance doors, where no vestibule exists, should be provided with storm doors for winter use. It is recommended that all outside doors be built of No. 3 cuts or better White Pine, No. 2 Clear or Better Douglas Fir, or other suitable material of equivalent grade. Minimum thickness $1\frac{3}{8}$ ", recommended thickness $1\frac{3}{4}$ ".

(g) **Garage Doors:** Describe briefly the type and thickness.....

Tin Clad Doors.....

Garage doors shall be at least $1\frac{3}{4}$ " thick, of Pine or Douglas Fir, etc., in the grades given in (f) above.

(h) **Interior Trim:** Describe material. Ground or First Floor.....

Second Floor, etc.....

Basement if finished.....

All inside trim shall be out of clean, sound stock suitable for receiving a good paint or varnish finish. The choice of material is left with the owner.

Substantial architraves around all door openings in walls and partitions, and base and shoe mould around all walls, window stools and aprons at windows, suitable wood trim elsewhere for protection of plaster work, etc., hook-rails and cupboard shelving, are essential, all in accordance with the type and cost of the house being constructed.

(i) **Interior Doors, etc.** Describe type and material and thickness.....

Ground or First Floor.....

Second Floor, etc.....

Basement.....

The choice of material to be used in doors is left with the owner. The minimum thickness of all interior doors to rooms, closets, etc., shall be $1\frac{3}{8}$ ", but it is recommended that doors $1\frac{3}{4}$ " thick be used in entrances to principal rooms.

11. Finishing Carpentry—*Concluded*

(j) **Under Flooring:** Describe material, thickness and manner of laying

All sub-flooring shall be $\frac{7}{8}$ " boarding, laid diagonally and ends shall be cut over joists. It is recommended that a layer of building paper be placed between the under and finished flooring.

$\frac{5}{8}$ " Sheathing grade fir plywood may be used for underflooring.

(k) **Finished Flooring:** Describe materials and thickness in principal rooms on Ground or First Floor.....

In other rooms.....

On Second Floor, etc.....

In Bathroom.....

In Kitchen.....

Where floors are to be finished in wood, the material used shall be birch, maple, beech, or oak, preferably $\frac{3}{4}$ " thick matched flooring in No. 2 grade or better, but $\frac{3}{8}$ " thick hardwood flooring may be used if laid on specially prepared under-floors. Douglas Fir, edge grain flooring No. 2 Clear or better, $\frac{3}{4}$ " thick is also acceptable.

Kitchen floors may be of hardwood, or of softwood covered with inlaid, or better, linoleum laid according to manufacturers' instructions. Rubber flooring and asphalt composition coloured tiles may also be used under similar conditions.

Bathroom floors in ceramic tile are desirable, but rubber flooring, linoleum or other impervious materials may be used if applied by experienced workmen over a specially prepared underfloor, and properly cemented thereto.

(l) **Main Staircase:** Describe briefly materials to be used.....

The main staircase shall be of neat construction designed in keeping with the general character of the house. Treads shall be of hardwood or edge grain Douglas Fir made out of stock $1\frac{1}{4}$ " minimum thickness. Handrails shall be of hardwood.

(m) **Service Stairs:** Describe briefly, if any.....

(n) **Kitchen Cupboards and Fittings:** Describe briefly extent and materials.....

Built-in Ironing Board.....

Suitable kitchen cupboard sections with drawers, deep cupboards and hardwood top in the lower section, and shelving for dishes and supplies (with doors) in the upper section are required in all houses. A built-in ironing board is recommended, as well as suitable open shelving of dressed material of suitable grade for painting, in pantry or storeroom (if any) and in the basement.

(o) **Medicine Cabinet, Closet Shelving, etc.:** Describe briefly extent and materials.....

A suitable built-in medicine cabinet of neat design in enamelled finish with plate glass mirror in the door is desirable in the bathroom, preferably over the basin.

One or two shelves of dressed material suitable for painting will be required in the bedroom closets and four or five shelves in the linen closet, which is a feature recommended for all houses. Hook rails and one shelf are required in the Entrance Hall clothes closet. Shoe shelves and coat rods, etc., are desirable in bedroom closets.

18. **Insulation:** Describe briefly. (a) On outside walls.....

(b) On top floor ceilings between sloping rafters and under flat roof.....

A reasonable degree of insulation is required in the construction of outside walls and roofs. The method of insulating is optional.

On outside walls of solid brick or masonry construction, the use of a $\frac{1}{2}$ " or better, fibreboard plaster base on wood furrings or the use of $\frac{3}{8}$ " gypsum insulating plaster base will provide satisfactory insulation. The covering of 12" walls before furring with eelgrass cloth, or parging with cement and lime mortar and covering with asphalted saturated felt is recommended.

Solid brick or masonry walls 8" or 9" thick must be parged on the inside and covered with asphalted saturated felt weighing 15 lbs. per square and then furred to receive plaster base.

In frame construction $\frac{3}{4}$ " D.D., T. and G. sheathing on both sides of an external wall will satisfy the minimum requirements of insulation, but it is recommended that fibreboard plaster base, or gypsum insulating plaster base, be used on outside walls to provide further insulation.

Double boarding on roofs with an air space between will satisfy the minimum requirements of insulation. Otherwise roofs and/or ceilings of top floors shall be insulated with fibreboard plaster base ($\frac{1}{2}$ " thick or better) or gypsum insulating plaster base $\frac{3}{8}$ " thick or better or with any standard approved insulating material of equal or better insulation value to the above.

It should be noted that all heating calculations on heat losses through walls shall be consistent with the actual heat transmission values of the walls to be constructed.

It is recommended that a heat transmission unit through wall and roof of not over .15 to .16 B.T.U.'s per square foot per hour for each degree difference (Fahrenheit) between outside and inside temperatures be obtained in all houses.

19. **Lath and Plaster:**

(a) **Interior Plastering:** State briefly extent of work to be done, mentioning cornices and other decorative work.

Ground or First Floor.....

Second Floor.....

Other Floors.....

Basement.....

For finishing of interior walls and ceilings all plastering shall be at least two coat work upon tile walls or upon wood lath or fibre board base, and three coat work on metal lath, and shall measure about $\frac{5}{8}$ " in thickness from face of the lath. The base coat shall be calcined gypsum plaster with hair or fibre and made especially for "brown coat" work. It shall be used to the manufacturer's specification. A lime-hair-sand plaster made from pre-slaked lime paste and sand (1 part paste to 2 parts sand) and animal hair or fibre to the proportions of 1 part hair to approximately 3 parts lime by measure may be used where gypsum plaster products are not standard building materials.

The "white" or "finishing" coat shall be that generally known as Hard Finish made by using lime-putty or hydrated lime, gauged with plaster of paris to produce a hard setting material capable of being trowelled to a smooth finish. "Sand finished" work may be applied as a finishing coat as desired. Good workmanship shall be required in all finished plaster work, including rodding true to grounds or screeds, straight angles, even surfaces, etc. Cornices and decorative work shall be run or cast in plaster of paris on suitable grounds.

Metal corner beads are required on all vertical external angles and desirable on window and arch soffites.

19. Lath and Plaster—*Concluded*

Lath: Wood laths shall be of sound Pine, Cedar, Douglas Fir, Spruce, or comparable material set with joints broken every ten laths. Laths and plaster brown coat shall be taken down to the floor-line in all rooms.

Wood fibre base sheets not less than $\frac{1}{2}$ " in thickness or gypsum plaster base sheets not less than $\frac{3}{8}$ " in thickness may be those of any approved manufacturer and applied to furrings, studding or sheathed wall, etc., according to manufacturer's directions.

Metal Lath shall be 26 gauge or better expanded metal (painted or galvanized for inside work) Wire lath, backed or not backed, of approved manufacture may also be used.

Metal lath shall be used in general plaster work in locations where the use of wood lath is difficult, such as in shallow window jambs, and heads, across pipe chases, junctions of partitions with outside walls, in curved surfaces, arches and stair soffits, etc. Its use is recommended for all junctions of walls and ceilings, particularly in principal living rooms, bedrooms, bathrooms.

(b) Exterior Plastering (Stucco work): Describe extent and finish.....

Outside Plaster Work (Stucco) shall be run either direct on concrete surfaces or on 26 gauge or better galvanized iron expanded (or other) metal lath fastened to wood furrings $\frac{7}{8}$ " thick at 12" c/c. Stucco shall not be run direct on brick surfaces.

It shall be composed of a scratch coat made of 1 part portland cement, 3 parts sand and sufficient hydrated lime (10%) to make a workable mortar, and shall be pressed on to the wall to fill the space back of metal lath. It shall be well scratched and kept moist for two or three days. This coat shall be followed by a base coat of the same composition and left to set for a few days.

The finishing coat applied to this surface (which must be first moistened) shall be made of a portland cement-hydrated lime mixture, coloured if required with mortar stains, or it shall be made with an approved brand of cement stucco rendering, coloured if required, having satisfactory water repellant qualities, and applied according to the manufacturer's instructions.

Where permitted by by-laws No. 20 gauge galvanized loop wire applied to $\frac{3}{8}$ " x $\frac{7}{8}$ " furrings at 12" o.c or nailed with flat head furring nails that will ensure the wire being held $\frac{3}{8}$ " from the sheathing. Nails to be spaced not in excess of 12" each way.

(c) Plaster Boards, Fibre Boards, etc.: Describe where and how used.....

Where desired by the owner, ceiling and wall coverings may be of a standard make, first quality plaster board or fibreboard made expressly for wall coverings. In such cases the board shall be applied to furrings or studding placed at 1' 0" or 1' 4" centres, with joints blinded with plaster in the case of plaster boards or suitably treated with cover strips or by using lapped joints in the case of fibre wall board. All fibreboards shall be $\frac{1}{2}$ " thick as a minimum. All plaster board shall be $\frac{3}{8}$ " thick as a minimum.

20. Tile Work: State extent of work and type of tile to be used in

(a) Vestibule Floor.....

(b) Bathrooms

(c) Kitchens.....

(d) Elsewhere.....

It is recommended that in all houses the bathroom floors and the wall dadoes to a height of 4' 0" (6' 0" at shower) be tiled with a suitable ceramic or other floor tile on the floors and a wall tile with a glazed or matt surface on the walls. All shall be laid by skilled tilers on a concrete base for floor work and to a cement plaster backing on expanded metal lath for wall work. Tile work on vestibule floors and in kitchens, etc., is optional. If stone, slate or marble is to be used for vestibules, fireplace hearths, etc., it can be mentioned above under (d).

Built-in Toilet Fittings in Tile Wall. Give list of such fittings as towel bar, tooth brush holder, soap and paper holders, etc., to be used, and their location.....

The use of built-in tile fittings in bathrooms is recommended.

21. Roofing: State briefly the type of roofing to be used

- (a) On flat roofs.....
- (b) On pitched roofs.....
- (c) The kind and weight of metal (or other) flashings to be used.....
- (d) Gutters and down spouts.....
(material)

The minimum gauge or weight for flashings shall be as follows:—

26 gauge galvanized copper bearing sheet steel.
16 oz. copper, 14 oz. zinc or 4 lb. lead.

Building paper or felt shall be placed under all zinc flashings.

(e) Connection to drain system.....

Flat roofs are required to be covered with a 4-ply 7 oz. coal tar saturated felt roof laid on dry felt properly secured to the roof and covered with coal tar pitch and gravel, all to the felt manufacturer's specification for 10-year guarantee roofs, or, as an alternative, with a 3-ply asphalt saturated felt roof composed of a base coat of 45 lb. felt and two layers of 15 lb. felt, laid to the manufacturer's specification.

Where the service is available it is recommended that a guarantee bond be obtained from a Surety Company through the roofing contractor and/or the manufacturer of the roofing material, guaranteeing to keep the roof in a watertight condition for a period of 10 years from the date of laying.

Sloping roofs shall be covered and left in a thoroughly watertight condition by the use of any one of the following materials (or better), provided always the use of the material selected is approved by the local bylaws.

1. Sheet Metal Roofing: Either 26 gauge galvanized copper-bearing sheet steel or 16 oz. copper laid on "rolls" or otherwise with raised joints to take care of expansion. These shall be laid on one layer of 7 oz. felt (or better) with joints lapped 4". All joints between metal sheets shall be "lock" jointed to allow for expansion and all nails and seams shall be soldered. No galvanized nails shall be used on copper roofing work, or vice versa, but the nails must be of the same metal as the roofing.

2. Roofing Slate: Suitable hard burned tile or other similar roof covering as desired, properly laid over a 7 oz. felt covering (or better), with valleys, hips, ridges, etc., all protected by 26 gauge galvanized copper-bearing sheet steel, or 16 oz. copper flashings.

3. Asphalted Felt Shingles of not less than 210 lbs. weight to the 100 square feet, in colours as desired, laid to the manufacturer's specification, with all ridges and valleys, etc., flashed with slate surfaced roofing material as supplied by the shingle manufacturer, or metal flashed as described above for slate roofing.

21. Roofing—Concluded

4. **Wood Shingles:** In localities where the use of wood shingles is permitted by by-laws, sloping roofs not less than $\frac{1}{4}$ pitch may be covered with cedar shingles laid to the manufacturer's specifications provided such shingles meet the following requirements:—

Grade	Thickness in Inches	Length	Maximum Exposure	Minimum Width	Maximum Width	Amount of Clear Butt
No. 1-5X.....	5/2	16"	5 "	3 "	14"	all clear
No. 2-5X.....	5/2	16"	5 "	3 "	14"	12"
No. 3-5X.....	5/2	16"	5 "	2½"	14"	8"
Perfection						
No. 1 Grade.....	5/2½	18"	5½"	3 "	14"	all clear
No. 2 Grade.....	5/2½	18"	5½"	3 "	14"	12"
No. 3 Grade.....	5/2½	18"	5½"	3 "	14"	8"
Royals						
No. 1 Grade.....	4/2	24"	7½"	4 "	14"	all clear
No. 2 Grade.....	4/2	24"	7½"	3 "	14"	16"
No. 3 Grade.....	4/2	24"	7½"	3 "	14"	10"
No. 1-3X.....	6/2	16"	4½"	3 "	all clear
Eastern Extras.....	5/2 1/8	16"	5 "	3 "	all clear
Eastern Clears.....	5/2 1/8	16"	5 "	3 "	7"

Thickness in inches as 5/2 shall mean that 5 butts placed together shall measure not less than 2", etc.

It is recommended that for first-class roofs, only shingles measuring 5 butts to 2" or thicker and conforming to grade specification for all clear shingles be used. It is further recommended that for shingles 16" long where the slope of the roof has a rise of 6" or less to a run of 12" the maximum exposure be reduced from those called for above.

It is recommended that shingles be pre-dipped in creosote shingle stain or given two coats of shingle stain after erection. The use of hot-dipped zinc coated copper or other rust-proof nails is recommended for the application of cedar shingles.

22. Painting and Glazing:

1. **Painting:** Describe briefly the extent of the painting work to be done and give the number of coats to be applied (including the priming as one coat) and state the materials to be used.

(a) Painting outside woodwork.....

(b) Treating outside woodwork other than by painting (Stain, Varnish, etc.).....

(c) Painting inside woodwork, trim, etc.....

(d) Staining and finishing inside woodwork, trim, etc.....

(e) Finishing hardwood floors.....

(f) Painting or tinting ceilings.....

22. Painting and Glazing—*Concluded*

(g) Painting, tinting or papering walls.....

.....
All exterior woodwork to be painted shall have three coats, including the primer, of a white lead or white lead and zinc oxide paint mixed in pure linseed oil, and containing not less than 50% of white lead in the pigments of all medium light coloured paints. Either a "First Quality" paint manufactured by a standard paint manufacturer fulfilling this requirement and delivered ready to use in the manufacturer's original unbroken packages may be used, or the paint may be mixed at the site from ingredients in bulk, in which case the white lead shall be "Government Standard". Genuine linseed oil (raw oil is preferable for outside work), turpentine, dryers, and colours in oil shall be used in such paints.

Exterior woodwork to be stained shall be stained with two coats of creosote stain, or with oil stain followed by two coats of outside (spar) varnish of approved manufacture.

Exterior walls finished with cedar shingles or rough cedar siding may be given two coats of creosote shingle stain or two coats of penetrating oil in lieu of painting.

Inside woodwork to be painted shall be given three coats, including primer, of a standard paint manufacturer's inside paint made with a zinc oxide, lithopone or titanium oxide base, or a mixture of these. The use of lead paint for inside work is not recommended but may be used at the owner's discretion.

Inside woodwork (usually hardwood) to be finished in the natural shall be stained, filled if required, shellacked, waxed, or varnished as desired by the owner.

Tinting with glue size tint, or with water paint, or painting with oil paints if plaster conditions permit, is recommended for walls and ceilings of the Ground or First, and Second floor rooms. Walls, etc., may be papered at the owner's discretion.

2. Glazing. Describe briefly the weight of glass to be used in windows (permanent and storm sash) and mention any special glazing work (leaded glass, mirrors, etc.) to be installed.....

.....
All sheet glass used in window sash shall be equal or better than that sold in the trade as "glazing" quality. "Single weight" may be used in openings up to 2 sq. ft. and "Double weight" in larger openings. All shall be back puttied, well sprigged and face puttied.

A plate glass mirror in the bath room is required. Other mirrors in bedroom doors, etc., are optional.

The use of leaded glass in any openings is optional.

23. Plumbing Work:

1. **Materials.** Describe briefly the following materials to be used in the Plumbing Fixtures and drainage system.

(a) For soil pipe drains, etc.

Below basement floor.....

Above basement floor.....

(b) For vent piping.....

(c) For cold water piping.....

(d) For hot water piping.....

(e) For domestic hot water tank.....capacity.....gals.....

(f) For gas lines.....

It is required that all drain lines below the basement floor be "extra heavy" (XH) cast iron soil pipe set with lead caulked joints, and medium weight or better soil pipe with lead caulked joints above the basement floor. C.I. drains under basement floor must not come in contact with cinder fill.

In localities where permitted by by-laws vitrified socketed clay tile pipes may be used below the basement floor.

23. Plumbing Work—Concluded

Vent lines, and short waste water lines, 2" or less in internal diameter may be standard weight (or better) steel pipe galvanized, with cast or malleable galvanized fittings. Recessed fittings on waste lines are desirable. Cold and hot water piping shall be standard weight (or better) steel pipe galvanized, but in districts where the city or town water supply is known to have a corroding effect on galvanized pipe, copper or brass tubing or piping, with copper or brass fittings shall be used, particularly for the hot water supply lines. In such districts a copper or other non-rusting metal tank is recommended for domestic hot water.

Gas piping shall be standard weight black steel pipe or better with black cast or malleable fittings.

Every care shall be taken to ensure the use of fittings of the same materials as the pipe with which they are used. Under no circumstances shall iron fittings be used with copper pipe, or copper fittings with iron pipe.

2. **Drainage System.** Describe briefly the system of sewage disposal. If to city sewer state location of sewer line in reference to house.....

.....

If to septic tank state briefly its location, size and construction and means of disposal of overflow.....

.....

It is required in every house that the house drain be connected either to the city or town sewers according to local bylaws, or to a septic tank either in metal or in concrete of sufficient size to take care of the waste from the house, properly located and with the waste water from the tank distributed upon the soil through unglazed farm tile pipes, or otherwise satisfactorily disposed of.

3. **Plumbing Fixtures.** Give catalogue number and size of plumbing fixtures to be used, in the following table, mentioning name of catalogue. In apartment houses the fixtures to be used in typical bathrooms may be listed under (c) below.

(a) **Basement:**

Laundry tubs—size.....Cat. No.....

W.C. if any—type.....Cat. No.....

Basin, if any—size and type.....Cat. No.....

Bath, if any—size and type.....Cat. No.....

(b) **Ground or First Floor:**

Kitchen sink, size and type.....Cat. No.....

W.C., if any, type.....Cat. No.....

Basin, if any, size and type.....Cat. No.....

(c) **Second Floor Principal Bathroom:**

W.C., type.....Cat. No.....

Basin, size and type.....Cat. No.....

Bath, size and type.....Cat. No.....

Shower Bath, type.....Cat. No.....

Second Bathroom, if any:

W.C., type.....Cat. No.....

Basin, size and type.....Cat. No.....

Bath, size and type.....Cat. No.....

Shower Bath, type.....Cat. No.....

4. **Domestic Hot Water Supply.** Describe method of heating.....

24. **Heating Work:** Describe briefly the type of heating equipment to be installed under one of the following headings:

(a) **Hot water Heating.** Maker and size of boiler.....Catalogue No.....
Number of square feet of radiation to be installed.....
Type of radiators.....

(b) **Steam Heating:** Maker and size of boiler.....Catalogue No.....
.....
Number of square feet of radiation to be installed.....
Type of radiators.....

(c) **Hot Air Heating.** Maker and size of furnace.....Catalogue No.....
.....
Are distributing ducts and registers (hot and cold air) to be run to all principal rooms?.....
.....
If not, describe system briefly.....

(d) If the following devices are to be installed for air conditioning purposes, etc., describe them briefly, giving maker's name and catalogue number if possible.....
Motor driven fan.....
Humidifier.....
Air filter.....
Thermostatic control on house temperature, etc.....

(e) Has the heating system proposed, been designed by a heating engineer, employed by the owner, or by a qualified representative of the supply house, from the plans and specification? Answer fully
.....

What guarantee is being required of the heating contractor in respect to temperatures to be obtained in the house in cold weather?.....

All metal ducts in hot air heating system shall be not less than 28 gauge.

It is recommended that all houses be heated by a suitable central heating system of one of the types described above, the system being adequate to provide a reasonable degree of comfort (65° or better) in the coldest winter weather.

It is desirable that the sizes of radiators, pipes, ducts and furnaces be calculated by the architect or by a competent heating engineer or contractor, and it is required that a plan showing dimensions and locations of radiators or of air ducts be submitted with this specification. These dimensions may be shown on the regular floor plans or on a separate heating layout.

25. **Electrical Work:**

Do plans show location of electrical outlets?
.....

State type of wiring to be used. Knob and tube work.....
Loomex.....B.X. Conduit.....

Rigid metal conduit.....
Are electrical fixtures included in the contract?..... If so, what allowance has been made for their cost?.....

Are any of the following services provided for in the contract?
Electric stove wiring.....

25. **Electrical Work—Concluded**

Electric domestic hot water heater and wiring.....
.....
Electric bells and wiring.....
.....
Radio aerial and plug outlets.....
.....
Conduit for telephone wiring and outlets.....
.....
Other special services—describe.....
.....

A distribution system of electric light fixture outlets, switches and plug outlets, suitable and adequate for each individual house, shall be provided in all houses, the approximate location of such outlets being shown on the plans submitted.

All electrical installations shall be made by a certified electrical contractor in accordance with the Provincial or other ruling authority's regulations relative thereto, and a certificate in the form provided obtained from such authority, before connection is made to the main distribution lines.

It is recommended that the dining room and halls, etc., be provided with ceiling outlets or wall outlets controlled by switches, four plug outlets or more in each living room, and one plug outlet or more in dining rooms, halls and kitchen, etc. In bedrooms one or two plug outlets according to the size of the room will be required, ceiling outlets being optional. Bathroom ceiling or wall outlets shall be controlled by switches.

Basements shall be provided with ceiling or other outlets, one or more in each sub-division.

Electric fixtures appropriate for the class of house and type of room are required for all ceiling and wall outlets in living room, halls, bathrooms and bedrooms.

26. **Hardware:**

Is the finishing hardware (locks, hinges, etc.) included in the contract, or is it to be supplied separately by the owner?.....
.....

State approximate price allowed.....

In general, the finishing hardware shall be suitable and appropriate for the type of house in which it is to be placed. As a Minimum Standard of Requirements the following items are listed:

Front Door Hardware. Butts, steel ball-bearing sherardized cadmium plated butts finished to match other hardware, size 4" x 4" for doors 1 $\frac{3}{4}$ " thick—3 butts to the door are recommended.

Lock Set. A double bolt cylinder front door lock set with stamped brass knobs and plates, or a thumb latch set as desired, in rustproof metal. Other items such as letter plates, etc., shall be in stamped brass or other rustproof metal.

Inside Door Hardware. Butts, 2 per door, using loose pin, ball tipped pressed steel, plated butts, size 3 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ " for doors 1 $\frac{3}{8}$ " thick, and 4" x 4" for 1 $\frac{3}{4}$ " doors.

Locks. Minimum size and type, 3 $\frac{1}{2}$ " casing with appropriate knobs and plates, or knobs and separate key escutcheons in steel, plated in brass, bronze or nickel as required.

Rear Door. Steel butts 3 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ " for 1 $\frac{3}{8}$ " doors, 4" x 4" for 1 $\frac{3}{4}$ " doors—3 butts per door recommended.

Pulleys in double hung windows shall be standard steel pulleys or better.

Window Locks. "Crescent" type, iron locks, plated, and "hook" sash lifts, are recommended.

Butts for casement windows shall be 3" x 3" steel butts, or better, for 1 $\frac{3}{4}$ " sash, and 2 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ " for 1 $\frac{3}{8}$ " sash.

Casement Fasteners. "Tee handle" type fasteners are recommended for sashes 4' 0" and under in height, and Cremona bolts for sashes over 4' 0" high.

26. Hardware—Concluded

Kitchen Cupboard hardware shall consist of suitable plated cupboard door butts, knobs, metal or wood, drawer pulls, etc. Cast iron plated, or other finish, coat hooks of suitable type are required for closets off bedrooms, coat closet, etc.

27. Special Equipment: Describe briefly any special equipment or finishing included in the work to be done to complete the house.

- (a) Oil burner installation. Type.....
Manufacturer's name and catalogue number.....
Capacity of tank.....
Is it to be placed inside the house or buried outside?.....
.....
(b) Electric Refrigerator installation. Type.....
Size.....
(c) Electric stove.....
(d) Dishwasher.....
(e) Window Ventilator Fan.....
(f) Water softener.....
.....

Recommended in areas where water of an extreme degree of hardness occurs.

(g) Wrought iron work (decorative). Describe briefly its extent, and where it is to be installed.

- Outside railings.....
“ balconies.....
“ brackets or other decorative work.....
.....

Inside railings, etc.....

- (h) Fire-Escape.....
(i) Coal Chute.....
(j) Package Receiver.....
(k) Garbage Incinerator.....
(l) Dumb-waiter.....
(m) Elevator..... Submit specifications.....

28. Structural Steel Work:

If steel beams and columns are to be used in the floor framing, etc., give dimensions and location if they are not shown on the plans.....
.....

If steel lintels are to be used over openings in walls, describe location and give sizes.....
.....

Structural steel work used in framing, etc., shall be of sufficient size and strength to carry safely the superimposed load and to meet with all local requirements in the matter of details of construction. The maximum allowable tensile strength of mild steel beams shall be taken at 18,000 lbs. per square inch, and column sizes shall be figured on an actual compressive strength in pounds per square inch of $16,000 = \frac{70 \cdot l}{r}$ where l = length of column in inches and r = the least radius of gyration of the section.

NOTE: Describe in detail any Special Material, Workmanship or Equipment not covered in the above specifications.

Garages (Detached). Describe construction.....

CERTIFICATE BY OWNER

I, the undersigned, hereby certify that the information contained in these specifications and the accompanying plans for the house which I purpose to erect is to the best of my knowledge and belief true and correct, and that I agree, if granted a mortgage loan under the provisions of the Dominion Housing Act, to erect, or cause to be erected, the house described herein according to these specifications and the said plans.

SIGNED.....(Owner)

CERTIFICATE BY CONTRACTOR

I, the undersigned, contractor for the construction of the house described in these specifications and the accompanying plans, do hereby certify that I have examined the said plans and checked these specifications and that the said plans and specifications will be followed by me in the erection of the proposed house.

SIGNED.....(Contractor)

CERTIFICATE BY ARCHITECT

I, the undersigned, architect, do hereby certify (a) that I prepared the accompanying plans and furnished the information as contained in these specifications, (b) that it is my intention to supervise the construction of the house referred to in the said plans and specifications and to ensure that such house is built in accordance with the said plans and specifications.

SIGNED.....(Architect)

NOTE:—If the construction of this house is not to be supervised by the architect he will delete part (b) of his certificate.

Canada Finance, etc. of

D. H. 22
JAN. 10/36.

1936

CAI
489

LENDING INSTITUTION REFERENCE

D.H.A. No. _____

Government
Publication

DOMINION HOUSING ACT

MEMORANDUM SPECIFICATIONS

COVERING

MINIMUM STANDARDS OF MATERIALS AND CONSTRUCTION

TO BE USED IN

_____	DESCRIBE TYPE OF HOUSE
_____	OWNER
_____	LOCATION
_____	ARCHITECT
_____	BUILDER
_____	LENDING INSTITUTION
_____	DATE

MEMORANDUM SPECIFICATIONS

Covering Minimum Standards of Materials and Construction to be used in houses upon which loans are to be made under the Dominion Housing Act.

These specifications are to be filled out and furnished in duplicate to the Lending Institution with Borrower's Application Form D. H. 1. It is recommended that these specifications be completed through the agency of the architect or builder of the proposed house.

The Minimum Standards of Materials and Construction acceptable are described in detail in the notes placed below the questions to be answered. It is required that all construction and materials entering the proposed house be equal to or better than the Minimum Standards. It is also required that all work be done in a workmanlike manner by mechanics skilled in their respective trades.

Materials and construction will be required to conform with local Building By-laws and Provincial Regulations.

In the case of a house of fireproof construction, it is required that the details of such construction accompany the plans and these specifications.

The following drawings shall be furnished in duplicate with these specifications, to the scale of $\frac{1}{4}" = 1' 0"$ or $\frac{1}{8}" = 1' 0"$, except that the block plan may be shown in a reduced scale.

LIST OF DRAWINGS TO BE FURNISHED.

1. Block plan, showing boundaries (including street lines) of the lot; location of the proposed house and of the garage if separate from the house. Walks, driveways, and other landscape work, and, if possible, sewer and water lines should be shown. This plan shall be obtained by an official survey of the property.
2. Basement floor plan, ground or first floor plan and all other floor plans, with overall and detailed dimensions. Show all division walls, openings, etc., the location of all equipment, plumbing fixtures, heater, radiators, or registers (giving dimensions), electrical outlets, kitchen equipment, and any other special features. Separate heating and electrical plans may be submitted.
3. Elevations of all sides of the proposed house.
4. One section through the proposed house showing heights from floor to floor (basement to roof), heights of windows, including height from floor, and dimensions of all principal structural members (joists, beams, etc.) occurring in floors, walls and roof.

SPECIFICATIONS

EXCAVATION WORK:

1. Kind of Soil.....
(Rock, Clay, Sand, Filled Ground)

All ground upon which foundations rest must be able to support the superimposed load without subsidence.

Placing of footings and other foundations upon filled ground is not desirable. Filled ground shall be thoroughly tested and approved by a competent authority before being built upon.

2. Depth of Excavation.....

All foundations unless on rock must be sufficiently below finished grade line to avoid damage by frost. The minimum depth of foundations is generally given in local building by-laws.

3. Farm Tile Drain. Is it to be used around foundations, etc.? Give particulars

In all excavations where accumulation of water is likely to occur, foundations and basements shall be kept dry by placing a continuous row of 4" unglazed farm tile drain in a bed of stone or cinders around the outside of the wall at the level of the footings and below the basement floor level, and if necessary, a row or rows under the basement floor. All shall be connected through a running trap to the main drain or to other waste water system.

4. Waterproof Foundation Walls, etc. Give brief description

All foundation walls below grade shall be made watertight either by using a waterproof concrete in the foundation walls, the concrete being specially mixed to obtain this quality, or by applying a coating of coal-tar pitch, or an asphalted or other waterproof membrane to the outside of the walls below grade, or by parging the walls inside or outside with waterproof cement mortar, or by other suitable means. Basement floors shall also be made waterproof by any approved method, dependent upon the nature of the soil.

5. Grading and Planting: State briefly the extent of the work contemplated

It is required that all lots be levelled or terraced or otherwise satisfactorily treated after building operations are completed. It is desirable that planting and sodding or seeding be executed around the house in keeping with its character.

6. Walks and Driveway. Describe briefly their extent, nature, and material to be used in the fill and in the top surface.....

Suitable and properly constructed walkways from the street to the principal entrances of the house, and a driveway to the garage, if any, are required for all houses. The method of construction and the materials used in finished surfaces are left to the option of the owner. As a minimum, a thin bed of gravel, stone, broken brick, or cinders, with a fine gravel surface is satisfactory for a walkway, a 6" bed of stone gravel, brick or cinders with a fine gravel surface well rolled, for the driveway. If 1½" or better stone slabs are used for the walkway no specially prepared bed is required.

7. **Footings—Materials.....General dimensions.....**

Footings either of concrete or of masonry shall be of sufficient width and thickness to spread the load safely upon the soil, having due regard to its nature.

8. **Foundation Walls—Material.....Thickness.....**

Exterior foundation walls shall be of solid concrete or masonry, and of the thickness required by local building by-laws. In no case shall concrete foundation walls for houses be less than 10" in thickness, but the foundation walls of a one-storey garage attached to a house may be 8" minimum thickness if permitted by local by-laws. No masonry foundation walls shall be less than 16" thick. All exposed walls above grade shall be cleaned down and dressed, faced or pointed as desired.

Minimum requirements for concrete for foundation walls, etc.

Concrete shall be laid in sound forms, erected true to line and well braced against deflection under load. The ingredients of the concrete shall be measured and shall consist of not more than 3 parts sand and 5 parts crushed stone up to 2" size to 1 part of cement by volume. Good clean gravel and sand up to 6 parts by volume to 1 part of cement may be used. In foundation walls and other thick masses of concrete the use of stone "plumbs" or fillers of sound quality in reasonable quantities will be permitted, provided the stones are dropped into a bed of concrete so as to embed them properly. The use of very wet concrete is to be avoided since the strength of concrete diminishes rapidly if more water is used than that necessary to make a plastic mass. It is strongly recommended that wherever facilities exist to provide proper supervision of the mixing and testing of concrete, "2,000 lb. concrete" be used in foundation walls.

9. **Basement Floors: Describe briefly the construction to be used.....**

In general, basement floors shall be finished in cement, trowelled smooth, laid integrally by preference, on a 3" to 4" bed of cinder or stone concrete of the mix described above for foundation walls. The cement finish shall not contain more than $2\frac{1}{2}$ parts of sand to 1 of cement, and shall be $\frac{3}{4}$ " thick, or better. Before pouring the concrete bed, the ground to receive it shall be levelled and filled with five or six inches of broken stone, cinders, or brick, etc., in which tile drains, if any, are to be laid.

Where hardwood floors are required they shall be laid on a 4" concrete slab satisfactorily water-proofed. The wood flooring may be laid either direct on the concrete in a mastic composition, or upon wood sleepers.

10. **Basement Floor Drain—State type and where connected.....**

All basement floors below grade level shall be properly drained through a 4" glazed earthenware or cast iron drain pipe to sewer, or other means of waste water disposal. The drain shall be provided with a suitable trapped floor outlet and grating or strainer flush with the floor, and removable for cleaning.

11. **Reinforced Concrete—Describe briefly where used and how constructed.....**

Reinforced concrete used for structural purposes such as floor slabs, columns, etc., shall be carefully laid in tight forms and reinforced to details to be provided by the architect or by a qualified construction engineer. The concrete shall be to the full thickness specified and shall be carefully placed in the forms. No forms shall be removed under fourteen days. Unless concrete mixed under

special supervision is to be used, it shall be mixed in the following proportions—1 part of cement, 2 parts of clean sand, 4 parts of crushed stone of a size to pass through a $1\frac{1}{2}$ " ring. A mixture of 1 part of cement to 4 parts of clean gravel and sand may be substituted for the above. In localities where concrete of a specially supervised mix is obtainable it is strongly recommended that "2,500 lb. or better concrete" be used in all reinforced concrete work.

The following table of slab thicknesses and reinforcing is given as a guide for minimum requirements in ordinary floor slabs of simple span (without beams) such as may be used as a floor between a basement and ground or first floor, and over a garage. The calculations are made so as to provide for a maximum live load of 40 lbs. per square foot upon the slab.

Solid reinforced concrete slab.

Span	Slab thickness	Reinforcing steel
Up to 8' 6".....	4 "	1" round rods at 9" c/c.
8' 7" to 10' 0".....	$4\frac{1}{2}$ "	1" round rods at $7\frac{1}{2}$ " c/c.
10' 1" to 11' 0".....	5 "	1" rods at $6\frac{1}{2}$ " c/c.
11' 1" to 12' 0".....	$5\frac{1}{2}$ "	1" rods at 9" c/c.
12' 1" to 13' 0".....	6 "	1" rods at 8" c/c.
13' 1" to 14' 0".....	$6\frac{1}{2}$ "	1" rods at $7\frac{1}{2}$ " c/c.

To prevent cracking of slabs, temperature rods $\frac{3}{8}$ " diameter and 20" to 24" centres shall be laid in the slab in a transverse direction to that of the main reinforcing.

12. **Outside Walls.**—Give brief description of construction to be used, quality of brick, stone, or concrete block, etc.....

Window Sill Material.....

Door Sill Material.....

Coping Material.....

1. Brick or Stone or Concrete Masonry Construction.—All exterior brick, stone or concrete walls shall conform in thickness to the requirements of the bylaws of the district, and no such wall shall be less than 8" in thickness in any part. In brick walls the brick shall be sound, hard burned and as non-absorbent as possible, 7% to 8% absorption by weight upon immersion in water being the maximum permitted. Bricks, wherever possible, shall be set in cement and lime mortar made by mixing, just prior to using, equal quantities of cement mortar (1 part cement to 3 parts sand) and lime mortar (1 part lime, previously slaked, to 3 parts sand). The use of hydrated lime in mortar is fully approved. Face bricks shall be new bricks of good shape and condition, bonded into the backing at least every fifth course. Backing bricks may be second-hand stock if they are hard burnt and clean. Backing the face brick with concrete blocks or terra cotta blocks will also be satisfactory, provided proper bonding is made between the two.

Where stone is used for the outside face of a masonry construction wall, it shall be a sound, hard, and relatively non-porous building stone. It shall be at least 6" thick on the bed if in the rough, or 4" if sawn, with sufficient header stones to make a proper bond with the backing. Backing material may either be stone, brick, concrete block or terra cotta tile of sufficient thickness to make the wall at least 12" thick overall. Concrete backing poured in forms as the building of the walls proceeds is approved, provided the total thickness of the wall is not less than 12" and that the concrete is allowed ample time to become thoroughly dry before the wall is furred and plastered.

Concrete walls, if solid, shall be built as described for foundation walls, properly reinforced over openings, and of the same general thickness as a brick wall would be in the same location.

Concrete tile walls shall be of the same thickness as a brick wall, constructed out of machine pressed, solid or hollow concrete blocks manufactured in strict accordance with local bylaws, but in all cases having at the age of twenty-eight days a minimum compressive strength of 1000 lbs.

per square inch of effective net section. Hollow blocks shall have webs 1" or more in thickness and the hollow spaces shall not exceed $\frac{1}{3}$ of the area of the end section. Blocks shall be built in the wall with webs vertical wherever possible, and solid blocks shall be used in a bearing wall under floor joist loads. Concrete blocks may be used in a finished wall face provided the outer face is made of special waterproofed cement finish, otherwise concrete block walls shall be given a stucco finish, either direct on the blocks or upon metal lath and wood furrings attached to the wall.

The requirement in the above paragraph as to the manufacturing process and strength of concrete blocks shall apply also to all concrete tile blocks used for "backing" purposes.

2. Stone veneer 6" thick or better, or brick veneer 4" thick or better, upon a wooden frame construction is permitted, provided the frame is substantially built either of 2" x 4" studding at not more than 16" centres, properly braced, and strengthened with separators and diagonal braces, sheathed with $\frac{7}{8}$ " T. & G. (or shiplap) sheathing or better, and covered on the outside with 7 oz. tarred or asphalted felt (or better), lapped 4" at the joints. A plank frame may take the place of the studding and boarding, but it shall be built of 3" plank or of 2" plank covered with T. & G. sheathing with building paper or felt between the two. In the case of a plank framing, all structural members shall be framed together with dovetailed joints to provide proper rigidity in the structure. All material used in plank framing and in studding, whether of pine, spruce, hemlock or Douglas fir, etc., shall be entirely free from soft rot, very large or loose knots, or shakes, etc., which would impair its nail holding qualities.

It is required that no grade of material below No. 4 Common White Pine, No. 3 Spruce (Quebec 4ths) and No. 3 Common Douglas Fir, Western Hemlock and Western Spruce be used in the wall framing, and sheathing.

All veneer material (brick or stone) shall be well secured to the wall with galvanized iron holdfasts or 5" nails, every 16" in height and width, and all veneering material shall be set in cement and lime mortar.

All woodwork used in this type of construction shall be new material. The use of material removed from other building structures is definitely prohibited, but form lumber used for foundation work on the house may be embodied in the superstructure if it is sound structurally and of suitable quality.

3. An "All Wood" frame construction may be used for outside walls where permitted by bylaws. The framing material and sheathing shall be as described above for veneered wall construction. The outside covering, if clapboard, or bevelled siding, shall be manufactured from No. 1 and 2 Common, or better, White Pine or equivalent grades in other suitable material. In Western woods where definite grades of dressed material are established, No. 2 Clear and better sidings are recommended in Western Red Cedar, Douglas Fir, Western Hemlock, and Western Spruce, or Clear A bevel sidings in Western Red Cedar. Where shingles are used, the grade known as Clear Walls in Eastern cedar and No. 3XXXXX in Western Red Cedar or better grades shall be used. Such coverings or facings shall be laid according to standard building practice.

All lumber used in wall construction shall be new material as described above, not previously used in another building.

13. Fireproof Partitions and Floors.—State where they will occur, give thickness and materials to be used.....

Local bylaws shall be strictly observed in regard to the requirements of building fireproof partitions and floors in certain locations.

In general, and if not otherwise required by building bylaws, fireproof partitions and floor construction are required:

(a) Between any portion of a garage and the adjoining house. Partitions shall be at least 8" in thickness, built of brick, concrete or terra cotta tile, and set in cement and lime mortar. The floor between a garage and other occupied parts of a house shall be of fireproof construction, properly designed and reinforced to carry a superimposed live load of not less than 40 lbs. per sq. ft. In no case shall the fireproof floor slab be less than 4 inches in thickness. In localities where it is allowed

by bylaw, the floor between a garage and other occupied parts of a house may be of joist construction protected on the garage side with two independent applications of expanded metal lath and plaster $\frac{5}{8}$ " thickness, or of other fire-resisting materials.

(b) Between two semi-detached houses. The common wall between two semi-detached houses shall be built in conformity with local bylaws, which in some instances may require partitions thicker than those described herein. In no case shall the common wall be less in thickness than 8" in the two upper storeys and 12" in either or both of the two storeys below. Materials described above for garage partitions will be approved. All beds and joints in the common wall shall be filled completely with cement and lime mortar. The ends of joists or other bearing members resting on the wall shall be splayed and shall not come within 4" of each other where resting on opposite sides of the wall. On 8" walls the joists shall therefore be staggered.

(c) Furnace room partitions in fireproof materials are recommended.

14. Chimneys—Flues, etc. State materials to be used, sizes of flues, and overall sizes of chimneys

.....

.....

.....

It is strongly recommended that flues from furnaces, stoves and fireplaces be lined with glazed clay tile pipe. All shall be built with brick or solid masonry walls 8" in thickness if not tile lined, and 4" if tile lined, and no smoke flue shall be less than $7\frac{1}{2}$ " diameter on the inside. The brick used shall be hard burned, and all chimney walls shall be built in cement and lime mortar. If not lined, the inside faces of brick shall have struck joints pointed flush. Each smoke flue shall have a cast iron clean-out door set, wherever possible, at least 3' 0" below the smoke inlet. No wood joists or beams shall rest on the brickwork forming a chimney flue. A stone, concrete or metal cap shall be applied to the top of each chimney to prevent disintegration of the brickwork.

15. Fireplaces: State material to be used, finish and location.....

.....

.....

All fireplaces shall have trimmer arches of concrete or brick, etc., 6" minimum thickness, to carry the hearths, and no wood forms or other wooden members shall remain in place below the hearth. Preferably, the hearth shall be cantilevered or corbelled out from the chimney breast and carried entirely by the chimney. Hearth construction of fire places, provided with a flue for burning coal or wood, shall be 16" wide, measuring from the chimney breast, and shall be a minimum of 5' 0" in length, or otherwise the full length of the breast. Open fire places shall be properly lined with firebrick or tile linings and be provided with a suitable damper, set to the manufacturers' detailed instructions. The net area of the flue from any fireplace shall be at least 1/12th of the area of the finished fireplace opening. It is desirable that an ash pit be provided below an open fireplace.

16. Rough Carpentry and Furring:

(a) Material: State kind of lumber (pine, fir, spruce, hemlock, etc.) and grade, to be used in frame work, joists, studding, etc.....

.....

.....

and in flooring, roofing, sheathing, etc.....

.....

.....

All material used for Rough Carpentry work shall be new material, and no second-hand lumber removed from other buildings during demolition shall be incorporated into houses described herein. Good form lumber used in the foundations, etc., may, however, be incorporated into the house, if it is in good structural condition.

16. Rough Carpentry and Furring—Continued

All materials used in joists, rafters, beams and studding, etc., shall be structurally sound, free from hard and soft rot, large knots that would impair its strength, shakes, etc., the following being the minimum grade requirement for framing stock, No. 3 Common White Pine, No. 3 Spruce (Quebec 4ths), No. 2 Common Douglas Fir, Western Hemlock and Western Spruce. Where other lumber is used the quality and grade shall be equal to these gradings or better. It is recommended that joists 2"x 8" and up, be one grade higher than listed above.

No joists shall be used in which knots of over one-fifth of the width of the joist occur in the middle half of the span.

Unexcavated space under wood floors shall be ventilated.

For flooring and roof boarding, etc., all material shall be reasonably sound, and entirely free of soft rot. No. 4 Common White Pine, No. 4 Spruce (Quebec 5ths), No. 3 Common Douglas Fir, Western Hemlock or Western Spruce may be used for this purpose, provided such grading excludes material containing soft rot.

(b) **Joists:** State sizes, and spacing on Ground or First Floor.....

Second Floor, etc.....

Top Floor Ceiling.....

It is desirable that joists in the principal floors of houses be spaced at 1' 4" centres with 1' 6" as maximum, so as to avoid springiness in the finished flooring. In ceiling construction 1' 8" centres is desirable. Joists shall be bridged with 1" x 2" (or better) diagonal cross bridging, one row to each span over 7' 0" and up to 12' 0" in width and two rows in spans over 12' 0". Joists shall be doubled under partitions and around trimmed openings.

TABLE OF MINIMUM DIMENSIONS AND SPACING OF FLOOR JOISTS

Span in Feet	Joists at 1' 4" Centres	Joists at 1' 6" Centres	Joists at 1' 8" Centres
Up to 8' 0".....	2" x 6"	2" x 6"	2" x 6"
8' 1" to 10' 0".....	2" x 8"	2" x 8"	2" x 8"
10' 1" to 12' 0".....	2" x 8"	2" x 8" or 2" x 10"	2" x 10"
12' 1" to 14' 0".....	2" x 10"	2" x 10"	2" x 10"
14' 1" to 16' 0".....	2" x 10"	2" x 10"	3" x 10" or 2" x 12"

TABLE OF MINIMUM DIMENSIONS AND SPACING OF CEILING JOISTS
(Where no living rooms exist above the ceiling)

Span in Feet	Joists at 1' 4" Centres	Joists at 1' 6" Centres	Joists at 1' 8" Centres	Joists at 2' 0" Centres
Up to 8' 0".....	2" x 6"	2" x 6"	2" x 6"	2" x 6"
8' 1" to 10' 0".....	2" x 6"	2" x 6"	2" x 8"	2" x 8"
10' 1" to 12' 0".....	2" x 8"	2" x 8"	2" x 8"	2" x 8"
12' 1" to 14' 0".....	2" x 10"	2" x 10"	2" x 10"	2" x 10"
14' 1" to 16' 0".....	2" x 10"	2" x 10"	2" x 10"	3" x 10" or 2" x 12"

(c) **Studding:** State sizes, and spacing (1) in bearing partitions.....

(2) in non-bearing partitions.....

Studding in bearing partitions shall be 2"x 4" or 3"x 3" at 1' 0" centres, and in other partitions shall be 2"x 3" or 2"x 4" at 1' 4" centres. Partitions shall be bridged at least once, preferably twice, in their height, and there shall be placed on top and bottom continuous runners and they shall be doubled at all major openings and trussed at their heads in bearing walls. In bearing partitions at least two-thirds of the studdings shall be in one length from floor to ceiling. Where bearing partitions extend through more than one floor the studding shall, if possible, be continuous from floor to floor, rather than rest upon the ends of the floor joists. This precaution is to prevent cracking through shrinkage of the joists. It is strongly recommended that in houses where heating ducts rise in a bearing partition that the partition be made double, so that the ducts will not cut through the horizontal runners, or disturb the spacing of the studding. It is recommended that metal straps or ties be used to tie or brace studding around heating ducts.

(d) **Roof Framing:** State sizes and spacing of rafters.....

Dimensions of rafters shall follow generally those of ceiling joists, with 2' 0" centres as the maximum span. Generally speaking, 2"x 6" rafters at 1' 8" to 1' 10" spacing is recommended for ordinary houses with 2"x 4" or 2"x 6" collar beams. Where unsupported spans do not exceed 6 feet 2"x 4" rafters may be used. Double rafters and trimmers shall be used around all dormer and other large roof openings, and hips and valley members shall be increased in size as required to carry the roof load.

(e) **Wood Furrings:**at ceilings for lath.

size centre

.....at outside walls.

size centre

1"x 2" furrings at 12" or 16" centres is standard practice for lathing and at not over 16" centres for fibre plaster base on masonry and brick walls, etc.

(f) **Sound Deadening:** Describe any sound deadening material being installed—give location

It is strongly recommended that in apartment houses sound deadening material be used in the construction of the floors and walls separating the various apartments. The use of inert materials between joists and between studdings, or a fibre board plaster base on walls and ceilings will provide a reasonable degree of sound insulation.

17. Finishing Carpentry:

(a) **Window and Door Frames.**—State materials and dimensions of stock.....

Frames shall be of full width of openings left for windows and doors, manufactured of a material equal or better in quality and grade to No. 1 and No. 2 Common White Pine or No. 2 Clear Douglas Fir. Window and door frames shall be thoroughly caulked with oakum when set, and preferably stopped with mastic compound applied under pressure at completion of brick or stone work.

(b) **Basement Window Frames and Sash:** State material.....

(c) **Window Sashes, etc.**—State whether double hung or casement or both.....

17. Finishing Carpentry—Continued

State material in sashes, wood.....thickness.....
metal.....type.....
manufacturer's name.....

Are storm sashes to be supplied?.....

Are fly screens to be supplied?..... If so, state material to be used.....

If shutters or outside blinds are to be supplied, give particulars including thickness.....

If metal weatherstripping of windows and doors is included, give particulars.....

Wood window sashes, etc., shall be made of White Pine No. 3 cuts and better, No. 2 Clear and better Western Red Cedar or of wood of equal quality and grading $1\frac{3}{8}$ " minimum thickness. Double hung sash shall be hung in box frames with balance weights, sash cords and pulleys, or otherwise fitted with approved spring balances, to facilitate easy opening and closing.

The use of blinds or shutters is optional.

The use of metal weatherstripping on sashes and doors is recommended.

(d) **Exterior Wood Trim.**—State material to be used in outside trim, porches, etc., and describe extent of trim briefly.....

Material used in outside wood trim shall be No. 1 and No. 2 Common White Pine or better, No. 2 Clear or better Douglas Fir, Western Hemlock or Western Red Cedar, or equivalent grades of other suitable woods. Generally speaking, trim may be made from inch thick stock, but barge boards and other independent members shall be from $1\frac{1}{4}$ " stock or better. Verandah floors and treads to outside steps shall be $1\frac{1}{8}$ " thick minimum, but ceilings of galleries, porches, etc., may be finished with $\frac{5}{8}$ " T. & G. material with V or beaded joint.

Rough clapboards in gables of masonry and brick houses, etc., shall be $\frac{7}{8}$ " thick at the butt, and imitation half-timbered work shall be at least $1\frac{1}{8}$ " thick finished. The material to be used in this type of work is left to the option of the owner. Hand rails, balusters, posts, etc., shall be made of dimensioned stock suitable for the class of house in which it is being placed.

(e) **Front Entrance Door and Frame:** State material to be used.....

Door thickness (minimum $1\frac{3}{4}$ ").....

Type of door.....

It is recommended that the front entrance door be a full 2" in thickness and built up out of solid stock in preference to veneer, as the latter deteriorates when used out of doors.

(f) **Other Exterior Doors: Where?**.....
Material.....
Thickness..... Are storm doors to be provided?.....
.....

Entrance doors, where no vestibule exists, should be provided with storm doors for winter use. It is recommended that all outside doors be built of No. 3 cuts or better White Pine, No. 2 Clear or Douglas Fir, or other suitable material of equivalent grade. Minimum thickness $1\frac{3}{8}$ " , recommended thickness $1\frac{3}{4}$ ".

(g) **Garage Doors: Describe briefly the type and thickness.**.....
.....
.....

Garage doors shall be at least $1\frac{3}{4}$ " thick, of Pine or Douglas Fir, etc., in the grades given in (f) above.

(h) **Interior Trim: Describe material. Ground or First Floor**.....
.....
.....

Second Floor, etc.....
.....

Basement if finished.....
.....

All inside trim shall be out of clean, sound stock suitable for receiving a good paint or varnish finish. The choice of material is left with the owner.

Substantial architraves around all door openings in walls and partitions, and base and shoe mould around all walls, window stools and aprons at windows, suitable wood trim elsewhere for protection of plaster work, etc., hook-rails and cupboard shelving, are essential, all in accordance with the type and cost of the house being constructed.

(i) **Interior Doors, etc. Describe type and material and thickness.**.....
Ground or First Floor.....
.....

Second Floor, etc.....
.....

Basement.....
.....

The choice of material to be used in doors is left with the owner. The minimum thickness of all interior doors to rooms, closets, etc., shall be $1\frac{3}{8}$ " , but it is recommended that doors $1\frac{3}{4}$ " thick be used in entrances to principal rooms.

(j) **Finished Flooring: Describe materials and thickness in principal rooms on Ground or First Floor**.....
.....
.....

In other rooms.....
.....

On Second Floor, etc.....
.....

In Bathroom.....
.....

In Kitchen.....
.....

Where floors are to be finished in wood, the material used shall be birch, maple, beech, or oak, preferably $1\frac{5}{8}$ " thick matched flooring in No. 2 grade or better, but $\frac{3}{8}$ " thick hardwood flooring may be used if laid on specially prepared under-floors. Douglas Fir, edge grain flooring No. 2 Clear or better, $\frac{3}{4}$ " thick is also acceptable.

17. Finishing Carpentry—*Concluded*

Kitchen floors may be of hardwood, or of softwood covered with inlaid, or better, linoleum laid according to manufacturers' instructions. Rubber flooring and asphalt composition coloured tiles may also be used under similar conditions.

Bathroom floors in ceramic tile are desirable, but rubber flooring, linoleum or other impervious materials may be used if applied by experienced workmen over a specially prepared underfloor, and properly cemented thereto.

(k) **Main Staircase:** Describe briefly materials to be used.....

The main staircase shall be of neat construction designed in keeping with the general character of the house. Treads shall be of hardwood or edge grain Douglas Fir made out of stock $1\frac{1}{4}$ " minimum thickness. Handrails shall be of hardwood.

(l) **Service Stairs:** Describe briefly, if any.....

(m) **Kitchen Cupboards and Fittings:** Describe briefly extent and materials.....

Built-in Ironing Board.....

Suitable kitchen cupboard sections with drawers, deep cupboards and hardwood top in the lower section, and shelving for dishes and supplies (with doors) in the upper section are required in all houses. A built-in ironing board is recommended, as well as suitable open shelving of dressed material of suitable grade for painting, in pantry or storeroom (if any) and in the basement.

(n) **Medicine Cabinet, Closet Shelving, etc.:** Describe briefly extent and materials.....

A suitable built-in medicine cabinet of neat design in enamelled finish with plate glass mirror in the door is desirable in the bathroom, preferably over the basin.

One or two shelves of dressed material suitable for painting will be required in the bedroom closets and four or five shelves in the linen closet, which is a feature recommended for all houses. Hook rails and one shelf are required in the Entrance Hall clothes closet. Shoe shelves and coat rods, etc., are desirable in bedroom closets.

18. **Insulation:** Describe briefly. (a) On outside walls.....

(b) On top floor ceilings between sloping rafters and under flat roof.....

A reasonable degree of insulation is required in the construction of outside walls and roofs. The method of insulating is optional.

On outside walls of solid brick or masonry construction, the use of a $\frac{1}{2}$ " or better, fibreboard plaster base on wood furrings will provide satisfactory insulation. The covering of 12" walls before furring with eelgrass cloth, or parging with cement and lime mortar and covering with asphalted saturated felt will be satisfactory. It is required, however, that walls 8" or 9" thick shall be parged and covered with felt as above, and that an insulating material such as fibre board $\frac{1}{2}$ " thick or better be used either as a plaster base or as an insulating medium back of the lath and plaster.

In frame construction $\frac{7}{8}$ " T. & G. sheathing on both sides of an external wall will satisfy the minimum requirements of insulation, but it is recommended that fibre board plaster base be used on outside walls to provide further insulation.

Double boarding on roofs with an air space between will satisfy the minimum requirements of insulation. Otherwise roofs and/or ceilings of top floors shall be insulated with fibre board plaster base ($\frac{1}{2}$ " thick or better) or with any standard approved insulating material of equal or better insulation value to the above.

It should be noted that all heating calculations on heat losses through walls shall be consistent with the actual heat transmission values of the walls to be constructed.

It is recommended that a heat transmission unit through wall and roof of not over .15 to .16 B.T.U.'s per square foot per hour for each degree difference (Fahrenheit) between outside and inside temperatures be obtained in all houses.

19. Lath and Plaster:

(a) **Interior Plastering:** State briefly extent of work to be done, mentioning cornices and other decorative work.

Ground or First Floor.....

Second Floor.....

Other Floors.....

Basement.....

(b) **Exterior Plastering:** (Stucco work.) Describe extent and finish

For finishing of interior walls and ceilings all plastering shall be at least two coat work upon tile walls or upon wood lath or fibre board base, and three coat work on metal lath, and shall measure about $\frac{5}{8}$ " in thickness from face of the lath. The base coat shall be calcined gypsum plaster with hair or fibre and made especially for "brown coat" work. It shall be used to the manufacturer's specification. A lime-hair-sand plaster made from pre-slaked lime paste and sand (1 part paste to 2 parts sand) and animal hair or fibre to the proportions of 1 part hair to approximately 3 parts lime by measure may be used where gypsum plaster products are not standard building materials.

The "white" or "finishing" coat shall be that generally known as Hard Finish made by using lime-putty or hydrated lime, gauged with plaster of paris to produce a hard setting material capable of being trowelled to a smooth finish. "Sand finished" work may be applied as a finishing coat as desired. Good workmanship shall be required in all finished plaster work, including rodding true to grounds or screeds, straight angles, even surfaces, etc. Cornices and decorative work shall be run or cast in plaster of paris on suitable grounds.

Metal corner beads are required on all vertical external angles and desirable on window and arch soffites.

Lath: Wood laths shall be of sound Pine, Cedar, Douglas Fir, or comparable material set with joints broken every ten laths. Laths and plaster brown coat shall be taken down to the floor-line in all rooms.

Wood fibre base sheets for plaster may be those of any approved manufacturer in which proper care is taken to provide for key to the plaster covering, particularly at joints of smooth surfaced materials. It shall be not less than $\frac{1}{2}$ " in thickness and applied to furrings, studding or sheathed wall, etc., according to manufacturer's directions.

Metal Lath shall be 26 gauge or better expanded sheet metal (painted or galvanized for inside work). Wire lath, backed or not backed, of approved manufacture may also be used.

19. Lath and Plaster—*Concluded*

Metal lath shall be used in general plaster work in locations where the use of wood lath is difficult, such as in shallow window jambs, and heads, across pipe chases, junctions of partitions with outside walls, in curved surfaces, arches and stair soffites, etc. Its use is recommended for all junctions of walls and ceilings, particularly in principal living rooms, bedrooms, bathrooms.

Outside Plaster Work (Stucco) shall be run either direct on concrete surfaces or on 26 gauge or better galvanized iron expanded (or other) metal lath fastened to wood furrings $\frac{7}{8}$ " thick at 12" c/c. It shall not be run direct on brick surfaces.

It shall be composed of a scratch coat made of 1 part portland cement, 3 parts sand and sufficient hydrated lime (10%) to make a workable mortar, and shall be pressed on to the wall to fill the space back of metal lath. It shall be well scratched and kept moist for two or three days. This coat shall be followed by a base coat of the same composition and left to set for a few days.

The finishing coat applied to this surface (which must be first moistened) shall be made of a portland cement-hydrated lime mixture, coloured if required with mortar stains, or it shall be made with an approved brand of cement stucco rendering, coloured if required, having satisfactory water repellent qualities, and applied according to the manufacturer's instructions.

(c) Plaster Boards, Fibre Boards, etc.: Describe where and how used.....

.....
.....

Where desired by the owner, ceiling and wall coverings may be of a standard make, first quality plaster board or fibre board made expressly for wall coverings. In such cases the board shall be applied to furrings or studding placed preferably at 1' 4" or 1' 8" centres, but at not over 2' 0" centres, with joints blinded with plaster in the case of plaster boards or suitably treated with cover strips or by using lapped joints in the case of fibre wall board. All boards shall be $\frac{1}{2}$ " thick as a minimum.

20. Tile Work: State extent of work and type of tile to be used in

(a) Vestibule Floor.....

.....

(b) Bathrooms.....

.....

(c) Kitchens.....

.....

(d) Elsewhere.....

.....

It is recommended that in all houses the bathroom floors and the wall dadoes to a height of 4' 0" (6' 0" at shower) be tiled with a suitable ceramic or other floor tile on the floors and a wall tile with a glazed or matt surface on the walls. All shall be laid by skilled tilers on a concrete base for floor work and to a cement plaster backing on expanded metal lath for wall work. Tile work on vestibule floors and in kitchens, etc., is optional. If stone, slate or marble is to be used for vestibules, fireplace hearths, etc., it can be mentioned above under (d).

Built-in Toilet Fittings in Tile Wall. Give list of such fittings as towel bar, tooth brush holder, soap and paper holders, etc., to be used, and their location.....

.....

.....

The use of built-in tile fittings in bathrooms is recommended.

21. Roofing: State briefly the type of roofing to be used

- (a) On flat roofs.....
.....
(b) On pitched roofs.....
.....
(c) The kind and weight of metal (or other) flashings to be used.....
.....
(d) Gutters and down spouts.....
.....
(material)
.....
(e) Connection to 'drain' system.....
.....

Flat roofs are required to be covered with a 4-ply 7 oz. coal tar saturated felt roof laid on dry felt properly secured to the roof and covered with coal tar pitch and gravel, all to the felt manufacturer's specification for 10-year guarantee roofs, or, as an alternative, with a 3-ply asphalt saturated felt roof composed of a base coat of 45 lb. felt and two layers of 15 lb. felt, laid to the manufacturer's specification.

Where the service is available it is recommended that a guarantee bond be obtained from a Surety Company through the roofing contractor and/or the manufacturer of the roofing material, guaranteeing to keep the roof in a watertight condition for a period of 10 years from the date of laying.

Sloping roofs shall be covered and left in a thoroughly watertight condition by the use of any one of the following materials (or better), provided always the use of the material selected is approved by the local bylaws.

1. Sheet Metal Roofing: Either 26 gauge galvanized copper-bearing sheet steel or 16 oz. copper laid on "rolls" or otherwise with raised joints to take care of expansion. These shall be laid on one layer of 7 oz. felt (or better) with joints lapped 4". All joints between metal sheets shall be "lock" jointed to allow for expansion and all nails and seams shall be soldered. No galvanized nails shall be used on copper roofing work, or vice versa, but the nails must be of the same metal as the roofing.

2. Suitable roofing slate, hard burned tile or other similar roof covering as desired, properly laid over a 7 oz. felt covering (or better), with valleys, hips, ridges, etc., all protected by 26 gauge galvanized copper-bearing sheet steel, or 16 oz. copper flashings.

3. Asphalted felt shingles of not less than 240 lbs. weight to the 100 square feet, in colours as desired, laid to the manufacturer's specification, with all ridges and valleys, etc., flashed with slate surfaced roofing material as supplied by the shingle manufacturer, or metal flashed as described above for slate roofing.

4. In localities where the use of wood shingles is approved by bylaws, sloping roofs may be covered with wood shingles, equal to or better than the following grades.

Eastern Cedar Shingles: "Clears" or better, or shingles at least 16" long and 3" wide with at least 6" measured from the butt of clear material free from all defects. The butts of 5 shingles piled together shall measure at least 2 $\frac{1}{8}$ " in thickness.

Western Cedar Shingles: No. 3 Grade, XXXXX or better, or shingles at least 16" long with not more than 30% of the lineal length being less than 4" wide, with 8" measured from the butt of clear material free from all defects. The butts of 5 shingles piled together shall measure at least 2" in thickness.

It is recommended that wood shingles be pre-dipped in creosote shingle stain, or given two coats of creosote shingle stain after erection. The use of hot dip process galvanized nails or of copper nails for wood shingles is recommended.

5. Sloping roofs of flat pitch may be covered with felt and pitch or asphalt to manufacturer's specification, if it is found advisable to do so.

22. Painting and Glazing:

1. **Painting:** Describe briefly the extent of the painting work to be done and give the number of coats to be applied (including the priming as one coat) and state the materials to be used.

- (a) Painting outside woodwork.....
- (b) Treating outside woodwork other than by painting (Stain, Varnish, etc.)
- (c) Painting inside woodwork, trim, etc.....
- (d) Staining and finishing inside woodwork, trim, etc.
- (e) Finishing hardwood floors
- (f) Painting or tinting ceilings
- (g) Painting, tinting or papering walls

All exterior woodwork to be painted shall have three coats, including the primer, of a white lead or white lead and zinc oxide paint mixed in pure linseed oil, and containing not less than 50% of white lead in the pigments of all medium light coloured paints. Either a "First Quality" paint manufactured by a standard paint manufacturer fulfilling this requirement and delivered ready to use in the manufacturer's original unbroken packages may be used, or the paint may be mixed at the site from ingredients in bulk, in which case the white lead shall be "Government Standard". Genuine linseed oil (raw oil is preferable for outside work), turpentine, dryers, and colours in oil shall be used in such paints.

Exterior woodwork to be stained shall be stained with two coats of creosote stain, or with oil stain followed by two coats of outside (spar) varnish of approved manufacture.

Inside woodwork to be painted shall be given three coats, including primer, of a standard paint manufacturer's inside paint made with a zinc oxide, lithopone or titanium oxide base, or a mixture of these. The use of lead paint for inside work is not recommended but may be used at the owner's discretion.

Inside woodwork (usually hardwood) to be finished in the natural shall be stained, filled if required, shellacked, waxed, or varnished as desired by the owner.

Tinting with glue size tint, or with water paint, or painting with oil paints if plaster conditions permit, is recommended for walls and ceilings of the Ground or First, and Second floor rooms. Walls, etc., may be papered at the owner's discretion.

2. **Glazing.** Describe briefly the weight of glass to be used in windows (permanent and storm sash) and mention any special glazing work (leaded glass, mirrors, etc.) to be installed.....

All sheet glass used in window sash shall be equal or better than that sold in the trade as "glazing" quality. "Single weight" may be used in openings up to 2 sq. ft. and "Double weight" in larger openings. All shall be back puttied, well sprigged and face puttied.

A plate glass mirror in the bath room is required. Other mirrors in bedroom doors, etc., are optional.

The use of leaded glass in any openings is optional.

23. Plumbing Work:

1. **Materials.** Describe briefly the following materials to be used in the Plumbing Fixtures and drainage system.

(a) For soil pipe drains, etc.

Below basement floor.....

Above basement floor.....

(b) For vent piping.....

(c) For cold water piping.....

(d) For hot water piping.....

(e) For domestic hot water tank.....capacity.....gals.....

(f) For gas lines.....

It is required that all drain lines below the basement floor be "extra heavy" (XH) cast iron soil pipe set with lead caulked joints, and medium weight or better soil pipe with lead caulked joints above the basement floor.

Vent lines, and short waste water lines, 2" or less in internal diameter may be standard weight (or better) steel pipe galvanized, with cast or malleable galvanized fittings. Recessed fittings on waste lines are desirable. Cold and hot water piping shall be standard weight (or better) steel pipe galvanized, but in districts where the city or town water supply is known to have a corroding effect on galvanized pipe, copper or brass tubing or piping, with copper or brass fittings shall be used, particularly for the hot water supply lines. In such districts a copper or other non-rusting metal tank is recommended for domestic hot water.

Gas piping shall be standard weight black steel pipe or better with black cast or malleable fittings.

Every care shall be taken to ensure the use of fittings of the same materials as the pipe with which they are used. Under no circumstances shall iron fittings be used with copper pipe, or copper fittings with iron pipe.

2. **Drainage System.** Describe briefly the system of sewage disposal. If to city sewer state location of sewer line in reference to house.....

.....

.....

.....

If to septic tank state briefly its location, size and construction and means of disposal of overflow.....

.....

.....

.....

.....

It is required in every house that the house drain be connected either to the city or town sewers according to local bylaws, or to a septic tank either in metal or in concrete of sufficient size to take care of the waste from the house, properly located and with the waste water from the tank distributed upon the soil through unglazed farm tile pipes, or otherwise satisfactorily disposed of.

3. **Plumbing Fixtures.** Give catalogue number and size of plumbing fixtures to be used, in the following table, mentioning **name** of catalogue. In apartment houses the fixtures to be used in typical bathrooms may be listed under (c) below.

(a) **Basement:**

Laundry tubs—size.....Cat. No.....

W.C. if any—type.....Cat. No.....

Basin, if any—size and type.....Cat. No.....

Bath, if any—size and type.....Cat. No.....

(b) **Ground or First Floor:**

Kitchen sink, size and type.....Cat. No.....

W.C., if any, type.....Cat. No.....

Basin, if any, size and type.....Cat. No.....

23. Plumbing Work—Concluded

(c) Second Floor Principal Bathroom:

W.C., type.....Cat. No.....

Basin, size and type.....Cat. No.....

Bath, size and type.....Cat. No.....

Shower Bath, type.....Cat. No.....

Second Bathroom, if any:

W.C., type.....Cat. No.....

Basin, size and type.....Cat. No.....

Bath, size and type.....Cat. No.....

Shower Bath, type.....Cat. No.....

4. Domestic Hot Water Supply. Describe method of heating.....

24. Heating Work: Describe briefly the type of heating equipment to be installed under one of the following headings:

(a) Hot water Heating. Maker and size of boiler.....Catalogue No.....

Number of square feet of radiation to be installed.....

Type of radiators.....

(b) Steam Heating: Maker and size of boiler.....Catalogue No.....

Number of square feet of radiation to be installed.....

Type of radiators.....

(c) Hot Air Heating. Maker and size of furnace.....Catalogue No.....

Are distributing ducts and registers (hot and cold air) to be run to all principal rooms?.....

If not, describe system briefly.....

(d) If the following devices are to be installed for air conditioning purposes, etc., describe them briefly, giving maker's name and catalogue number if possible.....

Motor driven fan.....

Humidifier.....

Air filter.....

Thermostatic control on house temperature, etc.....

(e) Has the heating system proposed, been designed by a heating engineer, employed by the owner, or by a qualified representative of the supply house, from the plans and specification? Answer fully

What guarantee is being required of the heating contractor in respect to temperatures to be obtained in the house in cold weather?.....

It is recommended that all houses be heated by a suitable central heating system of one of the types described above, the system being adequate to provide a reasonable degree of comfort (65° or better) in the coldest winter weather.

It is desirable that the sizes of radiators, pipes, ducts and furnaces be calculated by the architect or by a competent heating engineer or contractor, and it is required that a plan showing dimensions and locations of radiators or of air ducts be submitted with this specification. These dimensions may be shown on the regular floor plans or on a separate heating layout.

25. Electrical Work:

Do plans show location of electrical outlets?

State type of wiring to be used. Knob and tube work.....

Loomex..... B.X. Conduit.....

Rigid metal conduit.....

Are electrical fixtures included in the contract?..... If so, what allowance has been made for their cost?.....

Are any of the following services provided for in the contract?

Electric stove wiring.....

Electric domestic hot water heater and wiring.....

Electric bells and wiring.....

Radio aerial and plug outlets.....

Conduit for telephone wiring and outlets.....

Other special services—describe.....

A distribution system of electric light fixture outlets, switches and plug outlets, suitable and adequate for each individual house, shall be provided in all houses, the approximate location of such outlets being shown on the plans submitted.

All electrical installations shall be made by a certified electrical contractor in accordance with the Provincial or other ruling authority's regulations relative thereto, and a certificate in the form provided obtained from such authority, before connection is made to the main distribution lines.

It is recommended that the dining room and halls, etc., be provided with ceiling outlets or wall outlets controlled by switches, four plug outlets or more in each living room, and one plug outlet or more in dining rooms, halls and kitchen, etc. In bedrooms one or two plug outlets according to the size of the room will be required, ceiling outlets being optional. Bathroom ceiling or wall outlets shall be controlled by switches.

Basements shall be provided with ceiling or other outlets, one or more in each sub-division.

Electric fixtures appropriate for the class of house and type of room are required for all ceiling and wall outlets in living room, halls, bathrooms and bedrooms.

26. Hardware:

Is the finishing hardware (locks, hinges, etc.) included in the contract, or is it to be supplied separately by the owner?.....

State approximate price allowed.....

In general, the finishing hardware shall be suitable and appropriate for the type of house in which it is to be placed. As a Minimum Standard of Requirements the following items are listed:

Front Door Hardware. Butts, steel ball-bearing sherardized cadmium plated butts finished to match other hardware, size 4"x 4" for doors 1 $\frac{3}{4}$ " thick—3 butts to the door are recommended.

Lock Set. A double bolt cylinder front door lock set with stamped brass knobs and plates, or a thumb latch set as desired, in rustproof metal. Other items such as letter plates, etc., shall be in stamped brass or other rustproof metal.

Inside Door Hardware. Butts, 2 per door, using loose pin, ball tipped pressed steel, plated butts, size 3 $\frac{1}{2}$ "x 3 $\frac{1}{2}$ " for doors 1 $\frac{3}{8}$ " thick, and 4"x 4" for 1 $\frac{3}{4}$ " doors.

26. **Hardware—Concluded**

Locks. Minimum size and type, $3\frac{1}{2}$ " casing with appropriate knobs and plates, or knobs and separate key escutcheons in steel, plated in brass, bronze or nickel as required.

Rear Door. Steel butts $3\frac{1}{2}$ "x $3\frac{1}{2}$ " for $1\frac{3}{8}$ " doors, 4"x 4" for $1\frac{3}{4}$ " doors —3 butts per door recommended.

Pulleys in double hung windows shall be $2\frac{1}{4}$ " brass faced, or better.

Window Locks. "Crescent" type, iron locks, plated, and "hook" sash lifts, are recommended.

Butts for casement windows shall be 3"x 3" loose pin steel butts, or better, for $1\frac{3}{4}$ " sash, and $2\frac{1}{2}$ "x $2\frac{1}{2}$ " for $1\frac{3}{8}$ " sash.

Casement Fasteners. "Tee handle" type fasteners are recommended for sashes 4' 0" and under in height, and Cremone bolts for sashes over 4' 0" high.

Kitchen Cupboard hardware shall consist of suitable plated cupboard door butts, knobs, metal or wood, drawer pulls, etc. Cast iron plated, or other finish, coat hooks of suitable type are required for closets off bedrooms, coat closet, etc.

27. **Special Equipment:** Describe briefly any special equipment or finishing included in the work to be done to complete the house.

(a) Oil burner installation. Type.....

Manufacturer's name and catalogue number

Capacity of tank.....

Is it to be placed inside the house or buried outside?.....

(b) Electric Refrigerator installation. Type.....

Size.....

(c) Electric stove.....

(d) Dishwasher.....

(e) Window Ventilator Fan.....

(f) Water softener.....

Recommended in areas where water of an extreme degree of hardness occurs.

(g) Wrought iron work (decorative). Describe briefly its extent, and where it is to be installed.

Outside railings.....

" balconies.....

" brackets or other decorative work.....

Inside railings, etc.....

(h) Fire-Escape.....

(i) Coal Chute.....

(j) Package Receiver.....

(k) Garbage Incinerator.....

(l) Dumb-waiter.....

(m) Elevator..... Submit specifications.....

28. **Structural Steel Work:**

If steel beams and columns are to be used in the floor framing, etc., give dimensions and location if they are not shown on the plans.....

If steel lintels are to be used over openings in walls, describe location and give sizes.....

.....

Structural steel work used in framing, etc., shall be of sufficient size and strength to carry safely the superimposed load and to meet with all local requirements in the matter of details of construction. The maximum allowable tensile strength of mild steel beams shall be taken at 18,000 lbs. per square inch, and column sizes shall be figured on an actual compressive strength in pounds per square inch of $16,000 = \frac{70 \cdot l}{r}$ where l = length of column in inches and r = the least radius of gyration of the section.

NOTE: Describe in detail any Special Material, Workmanship or Equipment not covered in the above specifications.

CERTIFICATE BY OWNER

I, the undersigned, hereby certify that the information contained in these specifications and the accompanying plans for the house which I purpose to erect is to the best of my knowledge and belief true and correct, and that I agree, if granted a mortgage loan under the provisions of the Dominion Housing Act, to erect, or cause to be erected, the house described herein according to these specifications and the said plans.

SIGNED (Owner)

CERTIFICATE BY CONTRACTOR

I, the undersigned, contractor for the construction of the house described in these specifications and the accompanying plans, do hereby certify that I have examined the said plans and checked these specifications and that the said plans and specifications will be followed by me in the erection of the proposed house.

SIGNED (Contractor)

CERTIFICATE BY ARCHITECT

I, the undersigned, architect, do hereby certify (a) that I prepared the accompanying plans and furnished the information as contained in these specifications, (b) that it is my intention to supervise the construction of the house referred to in the said plans and specifications and to ensure that such house is built in accordance with the said plans and specifications.

SIGNED (Architect)

NOTE:—If the construction of this house is not to be supervised by the architect he will delete part (b) of his certificate.

